Factors that affect head teachers', district officers' and school counsellors' support for the uptake and use of ICT by Greek primary teachers

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ABSTRACT

This study investigated the influence of the attitudes and other psychological factors of head teachers, district officers and school counsellors on their support of the uptake of Information Communication Technology (ICT) in their schools as well as the factors that influence teachers to use ICT in their teaching. 181 teachers, 72 head teachers, 43 district officers and 47 school counsellors completed questionnaires designed to measure the uptake of ICT, attitudes towards computers and the components of the Theories of Reasoned Action and Planned Behaviour during March-June, 2002.

The results showed that, while the uptake of ICT in schools was relatively low, all educators who participated in this study had positive attitudes towards computers. Results of the regression analysis showed that perceived behavioural control was the strongest predictor of teachers' intention to use ICT followed by attitude and subjective norm. Teachers' ICT use was predicted by intention. The findings also showed that head teachers, district officers and school counsellors influenced teachers' intention and behaviour to use ICT in their teaching indirectly through their normative and control beliefs.

The findings also showed that the more positive the attitude of the head teachers, district officers, and school counsellors towards computers was (e.g. confidence, usefulness and liking) the greater was their support for the uptake of ICT in the schools. Furthermore, the findings from the regression analysis showed that the low computer anxiety subscale predicted head teachers' support for the uptake of ICT whereas educational impact subscale predicted district officers' support. In addition to **attitudes towards computers**, the analysis of the Theories of Reasoned Action and Planned Behaviour showed that other psychological factors appeared to have a strong influence on head teachers', district officers' and school counsellors' support of the uptake of ICT. These factors were the positive **attitudes towards the support of the uptake**, the perceived behavioural control as well as strong intention to support the uptake of ICT in their schools. The Theory of Planned Behaviour was found to be better than the Theory of Reasoned Action in predicting ICT use and support of the uptake of ICT behaviour. The findings have various implications, both for the use of the Theories of Reasoned Action and Planned Behaviour and the attitudes' items towards computers in other studies as well as for the use of ICT in teaching and the support of the uptake of ICT in schools.

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CHAPTER 1
INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

The present study used eight attitude subscales towards computers as well as the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) to investigate the factors that influence Greek head teachers, district officers and school counsellors to support the uptake of ICT in primary schools. In addition, this study used the TRA and TPB to investigate the factors that influence teachers' intention and behaviour to use ICT in their teaching and if the factors included their head teachers, district officers and school counsellors.

Over the last 25 years, research has been conducted at international, national and institutional levels to investigate the factors which influence the uptake of ICT in schools (e.g. Pelgrum and Plomp, 1991; 1993; Pelgrum, 2001; Pelgrum and Anderson, 2001). The results of this research, as further discussed in Chapter 2, have shown that the factors that influence the uptake of ICT are similar to those factors that influence curriculum implementation (see Fullan, 2001). These factors are related to characteristics of the innovation, characteristics at the local authority level, characteristics at the school level and factors external to the school system (Fullan, 1992; Fullan, 2001; Akker et al., 1992).

At the school level, the successful introduction and implementation of ICT in teaching depends on the teachers who implement the innovation in practice. According to Fullan (2001), "educational change depends on what teachers do and think" (ibid, p. 115). More specifically, every innovation requires teachers to change in three dimensions: the possible use of new materials, the possible use of new teaching approaches, and the changes in their beliefs and attitudes. However, during the implementation of ICT teachers face many problems. For instance, an earlier study by Pelgrum and Plomp (1991) concerning 22 educational systems, identified five most important problems teachers faced in the implementation of ICT: 1) "insufficient training opportunities for teachers", 2) "teachers' lack of knowledge/skills about using computers for instructional purposes", 3) "insufficient expertise/guidelines for helping teachers use computers

instructionally", 4) "not enough help for supervising computer using students", and 5) "lack of interest/willingness of teachers in using computers" (ibid. p. 73).

Head teachers, district officers and school counsellors can play an important role in challenging the above problems and appropriately applying the innovation. The literature on educational change contains a number of studies supporting the idea that these professionals influence the success of innovations and the role of teachers to a great extent (e.g. Havelock, 1973; Fullan, 1981; 1991; 1992; 2001; Louis, 1981; Hall and Hord, 1987). For example, at the school level, the support and encouragement provided by the head teacher are among the factors which influence the uptake of ICT (see Pelgrum and Plomp, 1991; Wolf, 1993). At the local authority level, local authority staff, such as district officers and schools counsellors, have been found to have a significant effect directly or indirectly on the uptake of ICT (Fullan, 1992). According to Akker et al., (1992), as far as the school organisation is concerned, problems are created in the implementation of ICT due to lack of encouragement and support from school administrators and head teachers, especially in the provision of facilities for training, acquisition of hardware and software, rearrangements of time tables, and other organisational measures. These factors are based on sociological issues and have been studied to a great extent, as presented in Chapter 2, by Fullan (2001).

Additionally, over the last three decades a number of studies have focused on the psychological factors that influenced the uptake of ICT in schools. For instance, these studies have focused on the attitudes of those involved in the innovations and their behaviour to use ICT in their teaching. The results of most of the studies show that the implementation of ICT depends on the teachers' attitudes towards computers (Bliss et al., 1986; Woodrow, 1990; Pelgrum, 1993; Marcinkiewitz, 1994; Fabry and Higgs, 1997; Jones, 2004). The importance of the above findings led this study to measure the attitudes towards computers of teachers that used ICT in their teaching.

Furthermore, some studies have shown that the uptake of ICT is influenced by the head teachers' attitudes towards computers (Cox et al., 1988; Rhodes and Cox, 1990; Pelgrum, 1993). For example, Cox et al., (1988) in their research about the factors which affect the uptake of ICT in eight primary schools found out that "the level of uptake was higher in schools where the head teacher had a positive attitude to the value of CAL in

the primary curriculum" (ibid, p. 173). As far as the attitudes of district officers and school counsellors towards computers and their effects on the uptake of ICT in their schools are concerned, no references have been found in the literature. Therefore, this study investigated the effects of attitudes towards computers of head teachers, district officers and school counsellors on their support of the uptake of ICT in their schools.

In addition to attitudes towards computers, in the last 30 years, a number of studies have proposed theories or models to represent other factors except attitudes that influence the human behaviour (see Chapter 3). The Theory of Reasoned Action (TRA) (see Chapter 3, Section 3.5.1) and its extensions, the Technology Acceptance Model (TAM) (see Chapter 3, Section 3.5.2) as well as the Theory of Planned Behaviour (TPB) (see Chapter 3, Section 3.5.3) have been found to be very useful in predicting a wide range of behaviours.

According to the TPB[1] (see Ajzen, 1985; 1988; 1991; 2002), human action is influenced by intention to perform the behaviour and also by perceived behavioural control when behaviour is not under complete volitional control. Intention, in turn is influenced by attitudes towards the behaviour, subjective norms and perceived behavioural control over the behaviour. Attitudes towards the behaviour are overall evaluations of the behaviour as positive or negative for the individual while subjective norms are general perceptions of social pressure to perform or not to perform a particular behaviour (see Ajzen and Fishbein, 1980). Perceived behavioural control reflects the individual's perception of control over the behaviour. Finally, attitudes, subjective norms and perceived behavioural control are underpinned by behavioural, normative, and control beliefs.

According to TAM, an individual's technology acceptance decision is determined by his or her behavioural intention which is underpinned by his or her attitude towards the use of technology. Attitude towards use is determined by beliefs towards a technology's usefulness and ease of use, as perceived by an individual. However, the above three theories have rarely been applied in ICT in education (see Chapter 3). For example, Preston et al., (2000) used the components of perceived ease of use and perceived

[1] The difference between the TRA and TPB is that the TPB includes the component of perceived behavioural control as well as control beliefs (see Chapter 3, Section, 3.5.3).

usefulness of the TAM in order to measure teachers' attitudes towards using ICT in their teaching. However, the purpose of their research was not to include the prediction of teachers' intention and behaviour to use ICT. More recently, Yuen and Ma (2002) used the TAM to predict preservice teachers' computer acceptance. Their study did not measure actual behaviour but only intention to use ICT and most specifically in their work place and homes. Furthermore, only one study used the TPB to explain science teachers' intention to use educational technology in their teaching (see Chapter 3). Finally, no research has been undertaken to examine whether the TRA and TPB also holds for head teachers', district officers' and school counsellors intention and behaviour in supporting the uptake of ICT in schools.

The purpose of this thesis was to use as a case study the example of Greece where an investigation was conducted into the influence of people at the different stages of responsibility in the Greek educational system and how these might have influenced the support of the uptake of ICT in schools in Greece. In addition, this study investigated the factors that influence teachers' ICT use in teaching. This study considered that the TRA and TPB provide very useful theoretical frameworks for understanding and explaining Greek head teachers', district officers and school counsellors' intention and behaviour to support the uptake of ICT in their schools as well as teachers' intention and behaviour to use ICT in their teaching.

Recently, the Greek Ministry of Education is following a new policy towards ICT in education. The aim of this policy is to ensure the use and integration of ICT in all Greek primary and secondary schools rather than to carry out specific projects in a select number of schools, as in the past. For this reason, high priority is given to a number of actions which have been shown to be important in previous studies and previous stages of the Greek introduction of computers in schools, one of which is the further training of teachers, head teachers, district officers and school counsellors (Ministry of National Education and Religious Affairs, 2000).

As the purpose of this study was to investigate the factors that affect the support of the uptake of ICT in schools as well as the use of ICT in teaching, in the following sections the role of head teachers, district officers and school counsellors in Greek educational system as well as the current Greek policy towards ICT in education are presented.

1.2 THE ROLE OF HEAD TEACHERS, DISTRICT OFFICERS AND SCHOOL COUNSELLORS IN GREEK EDUCATIONAL SYSTEM

According to Fullan (2001), who studied many educational innovations in England, Canada and the USA, the role of head teachers, district officers and school counsellors in the introduction and implementation of innovations is significant. In Greece, as in many other countries, the head teachers, district officers and school counsellors in primary and secondary education are the main vehicles of authority.

The Greek educational system is centralised. For instance, the Ministry of Education is the main centre for decision-making and the formulation of educational policies. Moreover, the majority of the educational establishments in Greece are controlled by this Ministry. Therefore, before looking at the role of head teachers, district officers and school counsellors in detail, it is appropriate to start the discussion with the main characteristics of the Greek educational system. This helps to explain and understand better the results of this study that are presented in Chapters 6, 7, 8 and 9.

The Greek State offers free access to all Greek citizens, to general education. The basic principle of the Greek educational system is to provide an education that fights to secure equal opportunities, access and support for all students in all levels of general education (EURYDICE, 2004). Basically, the Ministry of Education formulates educational policies according to the political orientation of the country's administration. These policies result in draft laws that are submitted to Parliament for debate, after which, with occasional amendments, they become laws (decrees). The Ministry of Education is then responsible for their implementation and puts them into action through decrees, directives, and circulars addressed to the local educational authorities, to the legal entities of public law or the civil entities that the Ministry supervises. The Ministry follows-up the implementation of these laws and intervenes if necessary, to adjust or correct their implementation. With regard to schooling principles and practices, there is a national curriculum, uniform school timetables and approved text books that are compulsory in the private sector as well. An important influence on the Greek educational policy is the Pedagogical Institute of the Ministry of Education. This institute is responsible for the development of the curricula and the writing of the textbooks. It is also the main advisory body to the Ministry of Education and coordinates

all the in-service teacher training activities (Ministry of National Education and Religious Affairs, 1995).

According to Ministry of National Education and Religious Affairs (1995), a major role in the administration of Greek education is played by the district officers in local educational authorities. The district officers (administrators) of the local educational authorities are responsible "for the administration and operation of the schools under their jurisdiction" (ibid, p. 4). These are obliged to assist the teachers of the schools which they direct. The district officers as well as the head teachers participate at local level in committees that manage the funds allocated to cover operating expenses for primary schools. Most specifically, these committees handle the funds for the remuneration of cleaning staff, and carrying out school maintenance and repair, ordering equipment and taking every measure necessary to support the administrative operation of schools (EURYDICE, 2004).

Furthermore, the school counsellors are "responsible for providing guidance for teaching practices. They assess the performance of teachers and arrange their further training, as well as encourage educational research" (Ministry of National Education and Religious Affairs, 1995, p. 4). According to Ministry of National Education and Religious Affairs, school counsellors are at a higher level than teachers and their task is to cooperate with teachers, with head teachers, with pupils in order to ensure the smooth and unobstructed process of the pedagogical and teaching work. They help teachers, they visit schools of their area, they give instructions and they organise meetings or training seminars (EURYDICE, 2004).

The district officers and school counsellors also evaluate teachers. The aim of the evaluation of teachers is to strengthen their self-knowledge regarding scientific formation, pedagogical training level and teaching ability; to indicate their shortcomings in providing educational work and how to improve it by taking account these findings and the guidance of the evaluators, to indicate their needs in further training and to define the content of such training. In addition, the district officer evaluates head teachers for their administrative abilities (EURYDICE, 2004).

According to the Greek educational system the head teacher in primary education[1] is the main person responsible for the school's administration (Ministry of National Education and Religious Affairs, 1995, p. 34). Most specifically, the head teacher is responsible for the smooth operation of the school, for coordinating school life, for ensuring conformity with laws, encyclicals and service instructions, and for implementing decisions of the teachers' association. In addition, the head teacher participates in the evaluation of the school's teachers and cooperates with school counsellors and district officers. The head teacher is also the president of teachers' association which is responsible for the better application of educational policy, and the better operation of the school (EURYDICE, 2004).

With regard to the administration of education, it is important to note that with the introduction of the Law 1566/85 for primary and secondary education, an important step towards the decentralisation of education and mainly the allocation of school grants and the administration of school allowances was taken. This law provides the participation of local authorities (i.e. Prefecture and Municipalities) and representatives of social bodies in several educational committees which exist at school level as well as regional and national levels. Members of the administrative Council of Parents' Associations in each school participate in School Councils, which aim to support their school. One parent representative also participates in the Educational Committees operating in cities and towns, which offer advice to cover expenses of school units, and the opening and closing of schools, as well as the restoration of school buildings. Representatives of pupils from secondary schools also participate in the School Councils and Committees.

In general, the Ministry of Education with its local educational authorities and the representatives of them (i.e. district officer and school counsellor), is the controlling authority, overseeing education throughout the country. Efforts aiming both to decentralise the system and to involve social agencies, parents' and teachers' associations, have taken place in the last decade but the measures taken have not reached satisfactory results yet.

[1] The primary schools belong to the compulsory education. Attendance is compulsory and lasts six years, from the age of 6 to 12.

In brief, the above imply that although the Greek educational system is centralised, the implementation of any educational innovation or change in schools is based on head teachers, district officers and school counsellors. The introduction and implementation of ICT in their schools is maybe influenced by their support of the uptake of ICT. At present, which factors, if any, influence their support of the uptake of ICT are unknown. Therefore, this study using eight subscales of attitudes towards computers as well as the TRA and TPB investigated the factors that influence these three groups of leaders to support the uptake of ICT in their schools. In addition, taking into consideration all the above and the literature to be discussed in Chapters 2 and 3, teachers' intention and behaviour to use ICT is affected greatly by the support they have from the key professionals in the education district. Therefore, this study also used the TRA and TPB in order to investigate the factors that influence teachers' intention and behaviour to use ICT and if among these factors were the support from their head teachers, district officers and school counsellors.

1.3 THE GREEK EDUCATIONAL POLICY TOWARDS ICT

In 2000 Greece formed a new policy towards ICT in schools as it faced a number of new challenges: taking an active role in the European Union and other international organisations, improving its economy, organising the Olympic Games of 2004 and competing in a global economy. All these challenges have resulted in readapting the Greek policy towards ICT, not only in the areas of economy, telecommunications, transport, industry but also in the area of education (Greek government, 2000).

According to Ministry of Education, in 2000, the first priority of the Greek educational policy for the following six years was the integration of ICT into the educational practice. The aim was that each school, each teacher, and each pupil would have access to the Internet (Greek government, 2000). For implementing the above aims, the Greek Ministry of Education began a series of activities and programmes. Before these activities and programmes are mentioned, the reasons that Greece and other countries give such an educational priority to ICT are examined. These reasons will help to understand better the current Greek educational policy towards ICT. Additionally these reasons may influence the activities of head teachers, district officers and school counsellors regarding the support of the uptake of ICT and mostly their attitudes toward it.

The reasons why governments invest in programmes and decide to use ICT in education are numerous. Reviewing the literature, it is noted that Hawkridge's (1990a) study is frequently cited among the most important ones for examining the reasons for the use of ICT in education, in many countries. According to Hawkridge, there are several rationales for the use of ICT in education, one of these is a social one caused by computers pervading industrial societies and becoming important everywhere. We live in a new era where computers have become part of our lives. Thus, in this new situation, schools should prepare students to "...deal with computers, which ought to be demystified" (ibid, p. 4). In other words "...if children need to become literate and numerate, today they need also to know something about computers" (ibid, p. 5). They "...should be aware and unafraid of how computers work" (ibid, p. 4).

The second rationale proposed by Hawkridge was vocational. This rationale relates computers with the job children of today will hold in the future as adults. Thus, schools should teach children how to use and understand computers. "Teaching them programming gives children some confidence in their ability to control computers, and possibly lays the foundation for a career in computer science. Teaching children how to use applications programs gives them skills that may be useful to them as students and when they move into jobs" (ibid, p. 5).

The third rationale was a pedagogical rationale proposing "...that children will learn physics, art or any other subject better through computer assisted learning (CAL)" (ibid, p. 5). According to Hawkridge, this rationale had the greatest support from educators. These educators believed that using computers could improve the process of teaching and learning. Regarding the fourth rationale "...when computers arrive in a school, its staff, parents and students are more open to change than usually ...Computers require children to do less memorising of facts and more information-handling and problem-solving. Computers encourage students to learn by collaborating, rather than competing, with other students. Computers help administrators to bring about change" (Hawkridge, 1990b, p. 2). Hawkridge calls this rationale the catalytic rationale.

The above rationales, according to Hawkridge, are the most popular and provide answers to why many countries use ICT in education. Hawkridge points out three other rationales, namely the Information Technology rationale, the cost-effectiveness rationale

and the special needs rationale. The Information Technology rationale "...backed by the industry itself, favors placing large numbers of locally-made or assembled computers into schools, at government expense, in the hope that this will bring down the average cost of hardware" (ibid, p. 6). The cost-effectiveness rationale argues that computers can replace teachers and can reduce the cost of education. The special needs rationale maintains that children with special needs are helped a lot by the use of computers (Hawkridge, 1990a). Finally, Hawkridge argues that Information Technology and the cost-effectiveness rationale are less commonly used in education.

The following can be inferred by examining the issues mentioned above. First of all, the choice of rationale for introducing and implementing ICT in education depends on the policy each country adopts and the priorities posed by its educational system. Moreover, the choice of rationale influences other factors, such as the choice of hardware in the development of the specific educational software and the kind of training.

The introduction of ICT in education with respect to the above rationales is a complex issue in Greece. According to Metaxaki-Kossionides et al., (1992), the introduction of ICT in schools of higher secondary education took place in 1984 because "...the work market demanded graduates of secondary education with specialisation in programming at an increasing rate" (ibid, p. 17). In other words, the rationale for the introduction of ICT was partly a vocational one. Since then, the current policy of the Ministry of Education as well as the existing projects of the "Odysseia" programme (see Section 1.3.1) cover the majority of Hawkridge's rationales. For example, the project "Polifimos" of the "Odysseia" programme is influenced by the vocational rationale, the project "Laertis" by the special needs rationale and the project "Nausika" by the pedagogical rationale. The above rationales about the countries' use of ICT in schools have been examined. The Greek educational policy towards ICT during the last two decades is to be discussed further on.

1.3.1 Introduction of ICT into Greek primary and secondary schools

The introduction of ICT in primary secondary education started in the mid 1980s as a subject in a small number of schools. For example, the important computer - related government initiatives in primary education were the network "Telemachos", the programme of Greek language learning "Logomathia" and the programme "SEPPE". In

lower secondary education the initiatives in chronological order were the "Pilot introduction in 22 schools" (1984-87), the "Introduction in approximately 420 schools" (1988-92) and the "Introduction to all (about 1800) schools" (1992-95). Also in upper secondary education were the "Pilot introduction in 8 technical and vocational upper secondary schools" (1984-86), the "Introduction in approximately 100 technical and vocational schools and all 25 comprehensive schools" (1987-92), and the "Introduction to the remaining 150 technical and vocational schools" (1992-95) (Doukides, 1992, in Plomp et al., 1996).

According to Metaxaki - Kossionides et al., (1992) the programmes that were put into practice during the 1980's were not exploited to a great extent because they appeared to have many difficulties. One main problem was the difficulty of the Greek state to supply all schools with the necessary technical equipment. A second difficulty was the lack of school classrooms for the establishment of computer laboratories. All the above resulted in a delay in using ICT in the whole education system. In addition, according to Papadopoulos (1999), the biggest problem the Ministry of Education faced in the introduction and implementation of ICT in secondary education was the lack of sufficient teachers to use ICT in schools.

At the end of the 1990s' the situation was very different in primary as well as in secondary education. According to the educational reform act in 1997 (i.e. Act 2525/23-9-1997), the use of ICT in all classes and stages of secondary education should be included in the curriculum. In addition, since 1997, the Ministry of Education, in cooperation with the European Commission, has invested a large budget in a programme that is called "Odysseia" (2000, http://odysseia.cti.gr), revealing the importance of the in the new educational policy. The total budget of this programme was the largest ever regarding ICT in the Greek educational system: 18.5 billion drachmas (£ 32 million). The main aim of this programme was to support the policy of the Ministry of Education, which was the implementation of ICT in secondary education. Specifically, the programme consisted of 31 projects. Some of its objectives were the following:

- to connect all the schools to the Internet;
- to create contemporary computer laboratories;

- to develop new educational software and amend existing software for a range of subjects;
- to exploit pedagogically the ICT in the school curricula;
- to educate further technologically and pedagogically all teachers.

The above objectives mainly address secondary education. However the policy of the Ministry of Education was also to introduce ICT into primary education through the project "The Island of Faiakes". The project focused on pupils of the last two stages (9-12 years old) in 14 primary schools, in the areas of Athens, Volos, Larisa and Crete (Rapti et al., 2000).

Among the aims of the Ministry of Education was the extension of the project to 400 primary schools in the near future. For the project's successful implementation, the Ministry of Education had the cooperation of the National and Kapodistrian University of Athens, the University of Thessaly, the University of Crete, the National Technical University of Athens, the Computer Technology Institute and the Lambrakis Research Foundation (Rapti et al., 2000). Moreover, the Ministry of Macedonia and Thrace has set up a programme of learning how to use computers up to the last two stages in 110 primary schools that are situated in remote areas (2000, http://www.primeminister.gr/is2/index.htm).

More recently, the Greek Ministry of Education has launched an "Operational Programme for the Information Society" for the period 2000-2006 which extends previous initiatives such as the "Odysseia" programme and complements its general measures for providing schools with equipment and facilities, linking them in a network and developing ICT in education (EURYDICE, 2004). According to this programme, the aims of the Ministry of Education were:

- "providing a network of all primary, secondary and special needs schools and administrative units with ICT facilities, including hardware and suitable audio-visual equipment;

- finalising and modernising the national network on education (EduNet), as well as its infrastructure and services, so that all schools can access the network by the end of 2001, and installing an intranet linking all schools by 2006;

- ensuring rapid Internet access to teachers and pupils, and continuing to improve the Greek University Network (GUNet) and the higher education network management centres;

- increasing the establishment of public information centers via a network for young people in various sectors of society;

- undertaking expenditure on the eLearning infrastructure, under a plan covering the whole education system" (EURYDICE, 2004, p. 53).

In addition to these aims the Ministry of Education has launched another project that related to ICT training (see "Teacher Training in the use of ICT in Education", http://www.cti.gr). The project involves the training of 76.000 teachers of primary and secondary education in the acquisition of basic knowledge and skills in the use of ICT in education.

The above shows that there has not been a long history of introducing ICT in Greek primary schools as in the US and in the UK. Given this, the use of ICT in Greek schools might be different from the uptake and use of ICT in other countries, and similarly the attitudes of district officers, school counsellors and head teachers might be different to those in countries which have a longer history of ICT in schools.

The above Greek policy towards the ICT shows that the aim of the Ministry of Education is the implementation of ICT in all primary and secondary schools. However, this implementation as previous studies have shown depends on teachers' intention to use ICT as well as on head teachers', district officers' and school counsellors' support of the uptake of ICT. While a number of empirical studies have shown the sociological factors that influence teachers' ICT use in teaching (see Chapter 2), however little research has been conducted toward understanding and predicting teachers' intention and behaviour to use ICT in their teaching. In addition, no research has been found in the literature on the effects of district officers' and school counsellors' attitudes towards computers on the uptake of ICT or on the support of the uptake. Finally, no research has been undertaken to examine other psychological factors that influence head teachers', district officers and school counsellors' support of the uptake of ICT in their schools. Therefore, due to the limited research it is important to use the TRA and TPB as well as attitudes

towards computers subscales to examine if these are effective frameworks for understanding and explaining better the behaviour of ICT use in teaching and the support of the uptake of ICT in schools.

The results of this research provide useful evidence for future policies and practices in introducing and implementing ICT in education in primary schools. In addition, the findings have implications for the training planning of teachers, head teachers, district officers and school counsellors as far as ICT in education is concerned. The results also contribute to the international literature in general. Having presented the problems of the uptake of ICT in schools according to those influential factors the next section presents the aim, the research questions and the objectives of this research.

1.4 THE AIM AND THE OBJECTIVES OF THIS STUDY

The aim of this study was to investigate: a) the factors that influence head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools and b) the influence of these educational leaders on teachers' intention and behaviour to use ICT in their teaching.

In order to investigate the aim of this study, the following specific research questions have been identified:

1. What are teachers', head teachers', district officers' and school counsellors' **attitudes towards computers**?

2. Is there any significant difference as well as a relationship between teachers', head teachers', district officers' and school counsellors' attitudes towards computers and a number of demographic and computer variables (e.g. gender, age, qualifications, teaching/working experience)?

3. What is the influence of head teachers', district officers' and school counsellors' **attitudes towards computers** on their support of the uptake of ICT in their schools?

4. What is the influence of **attitude towards behaviour**, subjective norm and perceived behavioural control on head teachers', district officers', and school

counsellors' intention and behaviour to support the uptake of ICT in their schools as well as on teachers' intention and behaviour to use ICT in their teaching?

5. Do head teachers, district officers and school counsellors influence teachers' intention and behaviour to use ICT in their teaching?

6. What are head teachers', district officers' and school counsellors' behavioural, normative and control beliefs about the support of the uptake of ICT in their schools as well as teachers' beliefs about the use of ICT in their teaching?

The objectives of this study to address the above research questions were to:

1. investigate the uptake of ICT in Greek primary schools;
2. measure the attitudes of Greek teachers, head teachers, district officers and school counsellors towards computers;
3. find the relationship and differences between attitudes towards computers and a number of variables (e.g. age, qualifications, computer knowledge);
4. investigate the influence of **attitude toward the behaviour**, subjective norm and perceived behavioural control on teachers' intention and behaviour to use ICT in their teaching during the following three months;
5. investigate the influence of **attitude towards computers** on head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools;
6. investigate the influence of **attitude toward the behaviour**, subjective norm and perceived behavioural control on head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools during the following three months;
7. identify head teachers', district officers' and school counsellors' behavioural, normative and control beliefs regarding the support of the uptake of ICT in their schools, as well teachers' beliefs regarding the use of ICT in their teaching; and
8. compare the predictive validity of the TRA and TPB in predicting teachers' ICT use in teaching and head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools.

1.5 THE STRUCTURE OF THIS STUDY

Chapter 1 provides an introduction and rationale of the study. It mainly focuses on the necessity to investigate the factors that affect head teachers', district officers' and school counsellors' support for the uptake and use of ICT by Greek primary teachers. Because of the research focus on Greece, the Greek educational policy towards ICT is presented. The chapter also presents the aims and the objectives of the research as well as how the thesis is organised.

In Chapter 2 a literature review of the main models of educational changes and innovations is presented. In addition, in this chapter the factors that have been found to influence the uptake of ICT in schools through previous empirical research are discussed. Finally, it presents and discusses the role and the effects of head teachers, district officers and school counsellors during the introduction and implementation of ICT innovation.

Chapter 3 presents and discusses firstly the methods used to measure attitudes and secondly the theories of attitudes towards computers as well as the most relevant theories between attitudes and behaviour. The two theories considered relevant to this research were the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB).

The methodology of this study, which was conducted in 72 primary schools, is discussed in Chapter 4. Chapter 5 presents the current situation of ICT in these 72 primary schools.

Chapter 6 presents the results of the attitudes' survey towards computers of the 181 teachers that used ICT in their teaching in the 72 primary schools of this study. In this chapter the results of the use of the TRA and TPB are presented in order to predict teachers' intention and behaviour to continue to use ICT in their teaching.

Chapter 7 presents the attitudes of head teachers, district officers and school counsellors towards computers and the effects that these attitudes had on supporting the uptake of ICT in schools.

Chapter 8 compares the TRA and the TPB in order to predict head teachers', district officers' and school counsellor's' intention to support the uptake of ICT as well as their actual support in their schools.

Chapter 9 summarises the main findings and conclusions of the thesis and discusses the significance and the limitations of the study. In addition, the implications for research as well as for successful implementation of ICT in primary schools are discussed. Finally, recommendations for future research are presented.

CHAPTER 2
CHANGES IN SCHOOLS

2.1 INTRODUCTION

The previous chapter discussed the aim of the research which was to investigate the factors that affect head teachers', district officers' and school counsellors' support for the uptake of ICT by Greek primary teachers. This chapter presents and discusses the role of head teachers, district officers and school counsellors in the educational innovation, the effect of these educational leaders on the education of a country, and whether their roles have an effect on the introduction and implementation of ICT in education.

Firstly and more specifically in this chapter the most well known models of change are presented. In general, we need to obtain a general overview from the literature review about educational change and determine the factors playing a crucial role in its implementation. According to Cox and Rhodes (1989), many of the obstacles to the implementation of ICT in schools are specific examples of the obstacles to educational change in general.

Secondly, this chapter focuses on the different phases in the process of educational change and it presents the factors that influence them. Specifically, this chapter focuses on the phase of initiation and implementation of innovation and the degree to which the latter is affected by teachers, head teachers, district officers and school counsellors. Relevant evidence regarding the role of educational leaders towards innovation in the use of ICT and the effects of their attitudes on the uptake of ICT in schools is also presented.

2.2 MODELS OF EDUCATIONAL CHANGE

Reviewing the literature on educational change, the work of Havelock is noted (1973; 1976). He analysed 4.000 studies of change. According to Havelock, the relevant important models of change are the following three: the Research, Development and Diffusion Model (RD&D), the Problem-Solving Model and the Social Interaction Model. In addition to the above models, Havelock mentions a fourth one, the Linkage Model. This model is a synthesis of all the above, incorporating many of their

characteristics. Even though these models were developed more than 35 years ago, many of the aspects of these models are still relevant to today's innovation and change.

The presentation of these models in this chapter provides information about the way changes are applied in practice and also about the way knowledge is disseminated. Specifically, the presentation of models of change reveals the role of the different agents in facilitating and supporting change or innovation. Some of these change agents are head teachers, district officers and school counsellors. Their support of the uptake of ICT in schools may be affected by their perceptions of factors that influence innovations.

2.2.1 Research, Development and Diffusion Model (RD&D)

The Research Development and Diffusion Model (RD&D), shown in Figure 2.1, was first proposed by Brickell (1961) and later by Clark and Cuba (1965) (in Havelock and Havelock, 1973). According to Havelock and Havelock (1973) the RD&D model was very popular in the USA and was applied in agriculture, industry, medicine and education. In the RD&D model the change begins with the identification of the problem. Then, it carries on with finding and diffusing a solution. An important point is that the production of knowledge in this model is only carried out by researchers, who are systematic in development and dissemination. Moreover, in this model "the adopter or receiver is seen more as a passive consumer" (Hall and Hord, 1987, p. 33).

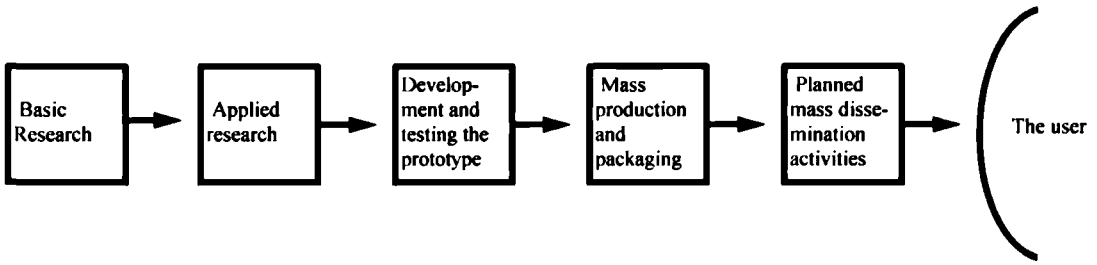

Figure 2.1 - Research Development and Diffusion Model (RD&D) (Havelock and Havelock, 1973, p. 13).

According to Havelock and Havelock (1973), this model is based on five main assumptions: "First, it assumes that there should be a rational sequence in the evolution and application of an innovation. This sequence should include research, development, and packaging before mass dissemination takes place. Second, it assumes that there must be planning, usually on a massive scale over a long time span. Third, it assumes that

there has to be a division and co-ordination of labour according to the rational sequence and the planning. Fourth, it assumes a more-or-less passive but rational consumer, who will accept and adopt the innovation in the right place at the right time and in the right form, if it is offered to him. Fifth and finally, the proponents of this viewpoint accept the fact of a high initial development cost prior to any dissemination activity because of the anticipated long-term benefits in efficiency and quality of the innovation and its suitability for mass audience dissemination" (ibid, p. 12). Its basic characteristics are shown in Figure 2.1.

According to Hall and Hord (1987), during the 60's, development projects based on this model were designed for the school curriculum of the United Kingdom. According to the conclusions drawn by the projects, "modern" materials and processes can be implemented by means of adequate programmes. However, "the fact that most of these programmes were never widely used illustrates the danger in not understanding more about the user end of the RD&D continuum" (ibid, p. 34). This type of model considered innovation as a step process from one stage to the next of basic research and applied research, thus furthering the developments. However, it did not take account of the interactions between the people involved in this innovation. This led on too a more interactive model called the Social Interaction Model.

2.2.2 Social Interaction Model

The Social Interaction Model, shown in Figure 2.2, gives emphasis to the patterns by which innovations diffuse throughout a social system. The key to the model's success is the movement of messages from person to person and system to system. Thus, a good channel of communication between the members of different schools and between schools and other organisations is needed for the diffusion of change. According to Havelock and Havelock (1973), the characteristics of this model are:

1. "The individual user or adopter belongs to a network of social relations, which largely influence his adopter behaviour.
2. His place in the network (centrality, peripherally, isolation) is a good predictor of his rate of acceptance of new ideas.
3. Informal personal contact is a vital part of the influence and adoption process.

4. Group membership and reference group identifications are major predictors of individual adoption.
5. The rate of diffusion through a social system follows a predictable S-curve pattern (very slow rate at the beginning, followed by a long late-adopter or 'laggard' period)" (ibid, p. 18).

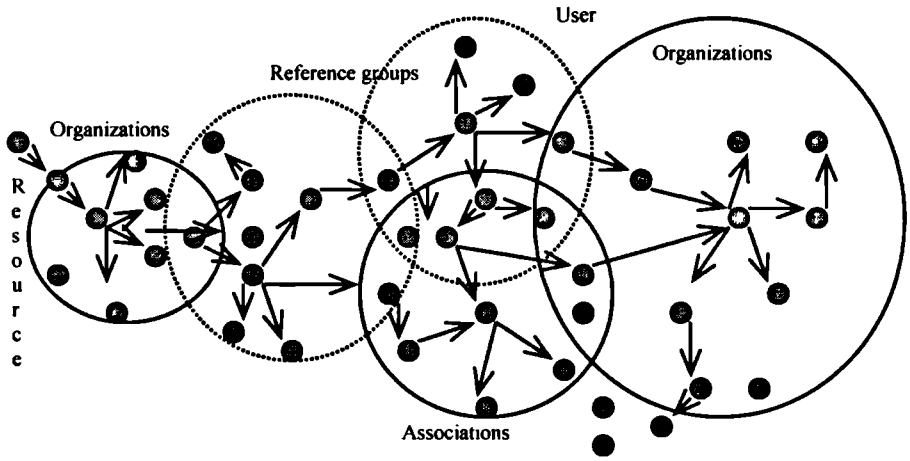

Figure 2.2 - Social Interaction Model (Havelock and Havelock, 1973, p. 19).

Hall and Hord (1987), refer to the role of facilitator, or change agent in this model. According to them, the role of these professionals "...is more significant during the time the adopter is becoming aware of the innovation and seeking more information" (ibid, p. 32). On the other hand, their role as leaders or change facilitators who influence changes is minimized since the adoption decision is taken. The stages of this model are shown in Figure 2.2.

The social interaction model looks at the movements of messages from person to person, and from system to system. It implies here that communicating and the communication process are very important and influence other people in the process of leading to a change. But it does not say very much about persons taking responsibility for the innovation. On the contrary, the problem solving model, as shown in Section 2.2.3 below, focuses on the user who actually is involved centrally in the process.

2.2.3 Problem Solving Model

The Problem Solving Model, shown in Figure 3.3, gives emphasis to the user of the innovation. According to Huberman (1973), this model "...assumes that the user has a

definite need and that the innovation satisfies that need. Thus, the process is from problem to diagnosis of a need and then to trial and adoption" (ibid, p. 62). Also in this model the solution of the problem is discovered by the receiver or with the assistance of external persons, who are the frequent agents of change.

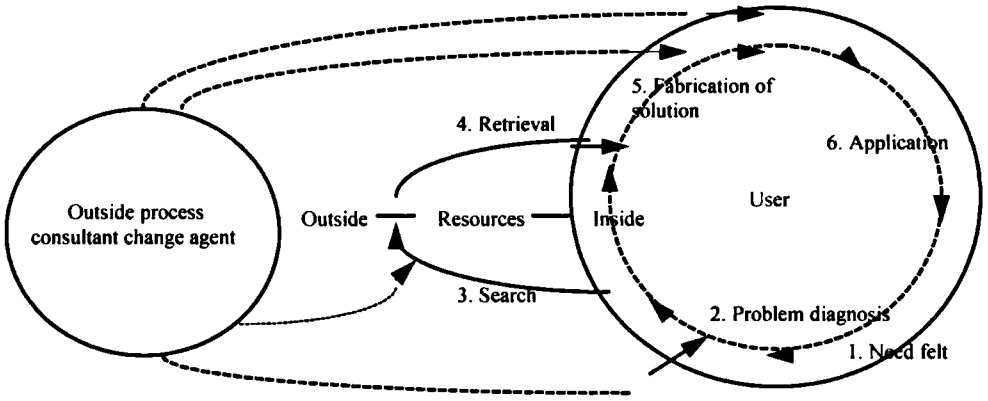

Figure 2.3 - Problem-Solving Model (Havelock and Havelock, 1973, p. 9).

"In the process of need satisfaction, the user goes through the following activities:

1. translation of need into a problem statement,
2. diagnosis of the problem,
3. search and retrieval of information that will be helpful for making a selection of the innovation,
4. adaptation of the innovation to his own situation,
5. trial of the innovation" (Havelock, 1976, pp. 9-36) (see Figure 2.3).

In this model, the role of the "adopter" is energetic throughout the process. For example, the consultants work as a resource who solve their problems through collaboration. Also, consultants help in training, supporting and assisting the client system to develop problem-solving skills.

One of the main problems of this model is that not all changes are recognised as a problem. This assumes that something is not done well enough and therefore you innovate to improve things. For example, one of the difficulties in ICT is that teachers think that they already do things well enough. Therefore, they do not need to bring innovation and change.

2.2.4 Linkage Model

The above three models, according to Havelock (1973), are the most important ones. Moreover Havelock introduced another model which he calls the Linkage Model. In this model, Havelock attempts to integrate the main characteristics and strategies of the Research, Development and Diffusion Model, Social Interaction Model and Problem Solving Model.

According to Havelock and Havelock (1973), "the concept of linkage starts with a focus on the user as a problem-solver... The user experiences an initial felt need which leads him to make a diagnosis and a problem statement. He then works through search and retrieval phases to a solution, and finally to the application of that solution... the linkage model stresses that the user must be meaningfully related to outside resources" (ibid, p. 23).

The previous four models have been used by researchers in different countries and applied to different educational systems (the RD&D in the American system, the Social Interaction in the Swedish system, the Problem Solving Model in the United Kingdom and in the USA). As we can see from the previous brief presentation of these models of change, there are many differences among them. The RD&D model emphasises the "developer", the Social Interaction Model emphasises the "communicator", and the Problem Solving Model emphasises the "receiver". In other words the RD&D model emphasises "the origins" of the innovation, the Problem Solving Model "the dynamics of individual adoption" and the Social Interaction Model the "wide diffusion" from an organisation or an educational system (Huberman 1973, p. 84).

As discussed in Sections 2.2.1 - 2.2.4, according to Huberman (1973), these models have many disadvantages. For example the RD&D model shows us that "...we lack institutional structures for designing and developing new ideas and materials", the Problem Solving Model shows "...the lack of processes for implementing changes once they are undertaken", the Social Interaction Model shows that "...we have few vehicles for dissemination of an innovation to a larger public" (ibid, p. 84).

The literature on models of change does not address the role of head teachers, administrators and school counsellors either directly or in detail. What one can find is the role of "change agents", a term including all the above mentioned educators.

In considering the different models which Havelock and others have introduced, then an important aspect of them is what Havelock (1973) names psychological wholeness. By using this term, Havelock refers to three elements which an effective facilitator needs to have: attitudes, knowledge and skills. The first element, attitudes, implies the change agent's concern for helping others, his interest in their progress, as well as a strong belief in his own self-identity. The second, knowledge, refers to a good knowledge of the facilitator's own self, as well as of the others and of the systems that are being changed. The last element, skills, refers to the change agent's abilities to work with others in a fruitful environment by increasing their awareness and interest and by transmitting new skills, knowledge and values to them. Havelock points out that these three elements have no empirical validation, but stand only as suggestions.

One aspect of Havelock's work is that when he was producing these models the use of computers in society and education was not so extensive. However, recent research which will be shown later in the literature of ICT's uptake, has shown that there is a very much greater impact by people outside schools (e.g. see Subjective Norm component in Chapter 3) on what happens in education. In addition, Havelock's models did not consider the external factors in the same way as some of the attitude models have done (e.g. see Perceived Behavioural Control component in Chapter 3).

The role of change agents is different in each model. For example, "...if a principal was to employ the social interaction model, he/she would bring a particular emphasis to the change facilitator role. The principal would introduce information about the change and ascertain whether teachers had sufficient information for deciding to adopt the change. The principal would also try to influence the most highly regarded teachers to adopt the change so that other peers would follow. He/she would emphasize communication lines and address teachers' perceptions of the innovation as they consider adoption" (Hall and Hord, 1987, p. 41).

According to Hall and Hord (1987), in the RD&D model, the change agent's role is minimal. The main idea of this model is that once the teacher decides to adopt the educational change, no further assistance is needed for its implementation. This implies that in this model the communication between the change agent and the teachers is of no importance. Unlike the social interaction and RD&D models, the problem-solver model "...involves the adopter throughout the process, collaboratively solving his/her problems. Consultants work as resources along with the receivers" (ibid, p. 34).

In the Linkage Model, the change agent is connected and informed about new programmes, processes and ideas. This means that the cooperation between the change agent and teachers seems to be very important as it encourages staff to put the educational innovation into practice. In this model, the knowledge and skills of the change agent are crucial in informing the teachers about the innovation and in encouraging them to put it into practice.

As we have seen in Sections 2.2.1 – 2.2.3, these models are used in different countries and in different educational systems. The main idea emerging from the study of these models is that the role of those educators who help in the implementation of an innovation is important. Among these people are the head teachers of schools, district officers and school counsellors. Their role in each model is connected to the degree of its success.

In this section, the models of educational changes were presented in a general manner. This was done for two reasons: on the one hand to understand how the process of change may takes place and on the other hand to understand the role of head teachers, district officers and school counsellors in the above models of change. The study of these models offers a very general overview of the possible roles and impact of these educators. It is necessary to examine in more detail the process of innovations and to investigate the factors that affect each phase of innovation. The following sections focus specifically on the factors which are related to the role of head teachers, district officers and school counsellors.

2.3 THE PHASES OF THE CHANGE PROCESS

The models discussed above not only provide useful ways of considering the factors which might contribute to teachers' use of ICT, but many of them have been used as a basis for empirical evidence of research studies into the uptake of ICT in education, which will be discussed later on in this chapter. However all of the above models do not consider individual people within the system. They generally refer to either group of people, for example teachers and innovators, to institutions themselves or to the process. Furthermore, what has been revealed in the last 25 years of research has been the fact that attitudes of individuals within an innovation process cannot be ignored and need to be considered because they are an important influence. For example, these models do not consider separately the attitudes of head teachers, district officers and school counsellors. In order to understand in what way the attitudes of these leading people might affect their support of ICT uptake in their schools, the next stage of this review of models is to identify the phases of change processes.

There is general agreement in the research literature that changes or innovation always require time. Earlier studies, for example Schenk (1985), mentioned that "...educational innovations often take twenty five years to permeate through the system" (ibid, p. 37). Moreover, a more recent study such as Fullan's (2001) agrees with the above argument. In particular, Fullan supports that "...complex changes take from 3 to 5 years, while larger scale efforts can take 5 to 10 years" (ibid, p. 52). Furthermore, it has also been well documented that changes or innovations go through stages. Previous studies mentioned that there are three phases or stages of change. Gross et al., (1971) for example, in their publication "Implementing Organizational Innovation" mention that the stages of change process are initiation, attempted implementation and incorporation.

The same stages that are mentioned by Gross et al., (1971) are also presented by Miles et al., (1987) in the 1980's. According to Miles et al., (1987), the phases of change process are: initiation, implementation and institutionalisation (see Figure 2.4).

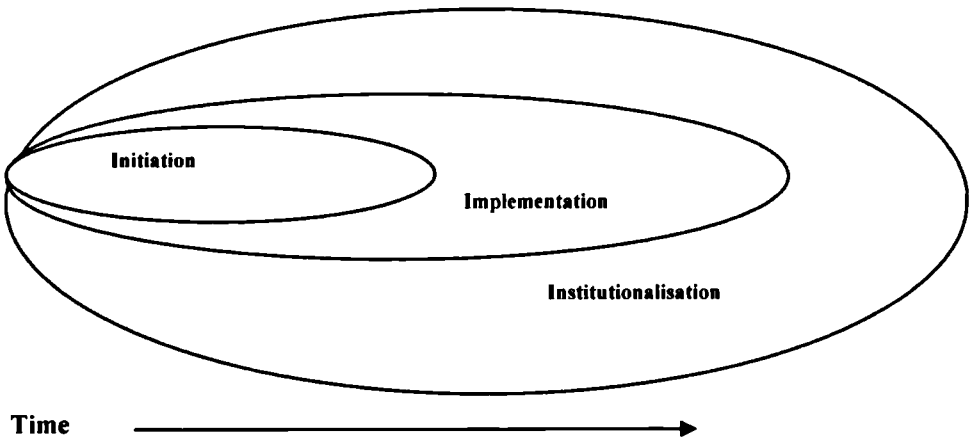

Figure 2.4 - The three overlapping phases of the change process (Miles et al., 1987, p. 245).

Similarly, more recent studies in the field of educational changes argue that there are three phases of change process. According to Fullan (2001), the first one is labelled initiation, mobilisation, or adoption. This phase "consists of the process that leads up to and includes a decision to adopt or proceed with a change". The second phase is called implementation or initial use "(usually the first two or three years of use) - involves the first experiences of attempting to put an idea or reform into practice". The third phase is called continuation, incorporation, routinization, or institutionalisation. This phase "refers to whether the change gets built in as an ongoing part of the system or disappears by way of a decision to discard or through attrition" (ibid, p. 50). These phases can be seen in Figure 2.5.

The three models which consider phases, involve people extensively in all of this process which indicates that the attitudes towards the initiation, implementation and continuation might affect the success of those stages. The literature on attitudes is discussed in Chapter 3. The models of phases of changes also show that innovations are very complex processes. In the initiation phase, a particular innovation is selected and introduced into the organisation. In the case of ICT as an innovation, the first phase (initiation) would be introducing ICT into education. The second phase, which Fullan labels as implementation involves implementing ICT in schools, i.e. the use of ICT across the curriculum of secondary education. The continuation phase is the extension of the previous two stages.

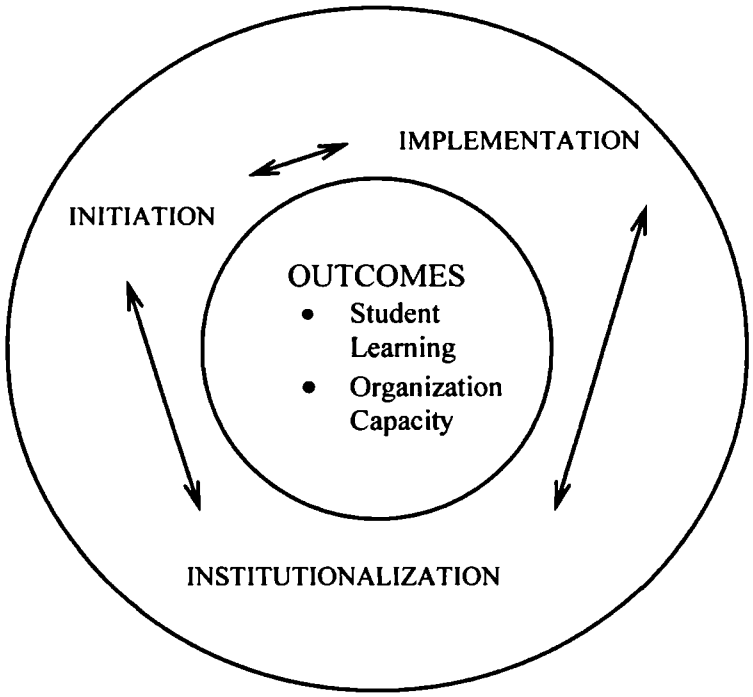

Figure 2.5 - A simplified overview of the change process (Fullan, 2001, p. 51).

In this stage, for example, the use of ICT across the curriculum can become an integrated part of delivering secondary education. In addition, there is the concept of outcome. According to Fullan (2001), "...outcome, depending on the objectives, can refer to several different types of results and can be thought of generally as the degree of school improvement in relation to given criteria" (ibid, p. 50). For instance, we can see if the attitudes have changed or if the skills of students have improved in specific lessons with the use of ICT.

Furthermore, the study of the above models of phases shows that among the phases there is a strong relationship and feedback from one phase which may affect positively or negatively the aims of the next phase. In the model of Fullan (2001), as the two-way arrows show, there is no linear process but an interaction between the three phases. For example, a decision at the initiation phase to use a specific type of educational software across the curriculum may be modified by various factors during the phase of implementation of ICT in education.

Another important conclusion that arises from the study of phases of change is the fact that innovations take many years. Fullan (2001) mentions that the initiation phase "may

be in the works for years" while implementation takes more than two years. Additionally, he mentions that "the line between implementation and continuation is somewhat hazy and arbitrary. Outcomes can be assessed in the relatively short run, but we would not expect many results until the change had had a chance to become implemented" (ibid, p. 52). The above means that the time from initiation to continuation is lengthy. According to Fullan, the most important idea, which arises from this model, is that "...change is a process and not an event" (ibid, p. 52).

In summary, each phase of the change process is not in isolation but has a strong relation to the other phases. This means that the success of educational change is difficult and depends on multiple factors. The factors exist in each stage and affect not only that stage or phase but the other phases as well. In the literature, there are many arguments and findings by many researchers (see Fullan, 2001) that support this.

One of the main conclusions that arise from much research in the field of educational change is that the roles of individuals and groups are important factors that affect the success of initiation and implementation. In order to understand how and whether factors influence each phase of innovations it is useful to consider firstly some of these factors. The main purpose of this study is to focus on how the role of specific influential people in the educational system is affected by their attitudes towards these innovations. For these reasons, the next sections present the factors, which affect initiation and implementation.

2.3.1 Factors affecting initiation

The factors that affect the initiation phase are numerous. In this section, only these factors that are related to the teachers, head teachers, district officers and school counsellors are presented. More specifically, this section presents these factors which influence ICT in the initiation phase. Fullan (1992) mentions that these factors are the same during the introduction of every innovation. According to Fullan (2001), "initiation is the process leading up to and including the decision to proceed with implementation" (p. 53). The success or the failure of the initiation phase determines the progress of the next phases.

Fullan presents eight factors that affect the initiation phase based on research and reviews done in the literature. These factors, which are shown in the Figure 2.6, are: the existence and quality of innovations, the access to innovations, the advocacy from central administration, the teacher advocacy, the external change agents, the community pressure/support/apathy, the new policy-funds (Federal/State/Local) and the problem-solving bureaucratic orientations.

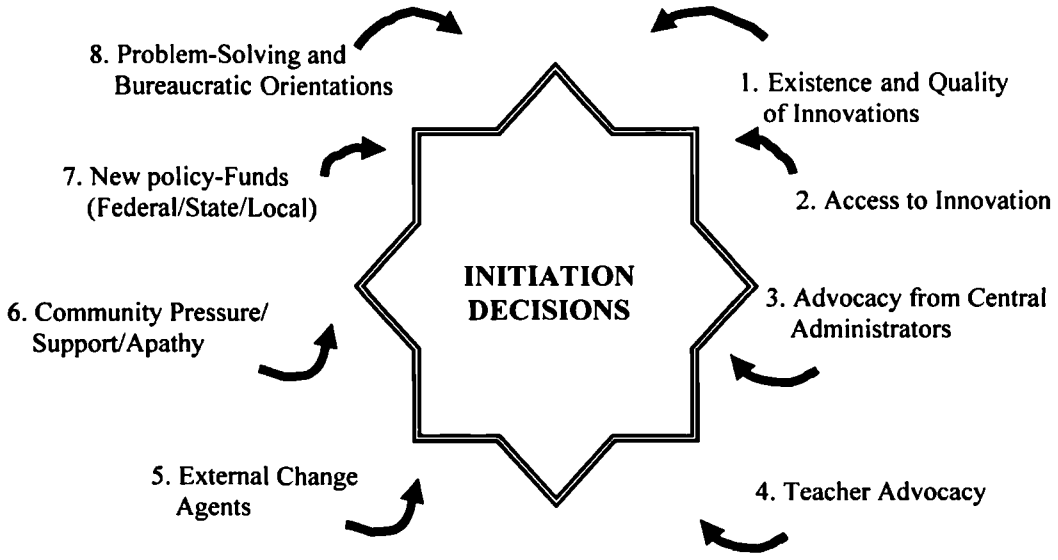

Figure 2.6 - Factors associated with initiation (Fullan, 2001, p. 54).

From the factors which affect the initiation phase of an innovation shown in the above figure, this chapter focuses on factors specifically relevant to the current research, which are: access to innovations, advocacy from central administrators, teacher advocacy and external change agents. These are discussed below.

2.3.1.1 Access to information

According to Fullan (2001), based on the results of many research studies, one of the biggest problems presented during the initiation phase is the lack of access of teachers to the information.

Teachers because of lack of time and energy, many times, "...do not have the opportunity for continuous personal contact, which would be necessary for becoming aware of and following up on innovative ideas" (Fullan, 1991, p. 53). As a result,

"...they are unfamiliar with and not confident about technical matters" (Fullan, 2001, p. 58).

In order to face this problem the role of the executive staff in education (i.e. head teachers, district officers and school counsellors) could play an important role. Fullan (2001) mentions that "district administrators and other central office personnel such as coordinators and consultants spend large amounts of time at conferences and workshops within ongoing professional networks of communication among their peers" (p. 57). For example, in the Greek educational system the head teachers of schools in cooperation with the district officers and school counsellors organise one-day conferences and seminars on various subjects concerning the innovations. Moreover, the school counsellors visit the schools of their area and through the personal contact with their teachers they try to address the problems, which appear in the school classroom (Ministry of Education, 1995).

Another factor that influences the initiation phase, as shown in Figure 2.6, is advocacy from central administration. According to Fullan (2001), this advocacy comes not only from district officers but also from head teachers.

2.3.1.2 Advocacy from central administration

According to Fullan's model (see Figure 2.6), head teachers and central administration advisors are also very important for the success of an innovation. This means that if the central administration has pioneers or advocates committed to this innovation, then they are more likely to have an influence on the teachers and head teachers in the school. Similarly, if the head teacher in the school supports the idea of innovation and is an advocate of that innovation, then he/she is more likely to take the necessary steps and provide the necessary funds for the staff within the school to enable the implementation of the innovation.

Fullan (2001) mentions many examples from the results of research which "...show that the chief district administrator and central district staff are an extremely important source of advocacy, support, and initiation of new programs" (ibid, p. 59). For instance, Huberman and Miles (1984) found that "...central office administrators were at the locus of decision-making in 11 of the 12 cases" in their study (p. 55).

In addition to the advocacy exercised by central administration, the success of an innovation during the initiation phase depends also on the amount of the teacher's advocacy to the innovation.

2.3.1.3 Teacher advocacy

When the innovation reaches the level of the teachers who have to implement the innovation then their role and advocacy is equally important. Other research into the uptake of ICT in schools has shown that unless teachers believe that the innovation is going to contribute to their children's learning or help in their teaching or help them in their promotion then they are not going to be good advocates of this innovation (Mevarech, 1995).

Teachers during innovation are persons that have an important role. They must adopt the new changes in the curricula, adopt new teaching methods and try to change their beliefs, their attitudes and their behaviour towards the new situation as well. In simple terms, they need to work hard for the implementation of innovation. The interactions between them give many opportunities for discussion concerning the innovation (Fullan, 2001).

There is a strong body of evidence that indicates that when cooperation between the teachers and also between the teachers and school head teacher or district administrator exists, then school improvement is bound to happen. Little (1982, in Fullan, 1991) investigated the following three situations that lead to school improvement:

- "...teachers engaged in frequent, continuous, and increasingly concrete talk about teaching practice;
- teachers and administrators frequently observed and provided feedback to each other, developing a "shared language" for teaching strategies and needs; and
- teachers and administrators planned, designed, and evaluated teaching materials and practices together" (in Fullan, 1991, p. 55).

In these two sections clearly an important aspect of the success of an innovation is whether the senior influential administrators and teachers themselves support the innovation and therefore have a positive attitude towards it. However, there are external agents who can also bring about change. This is discussed in Section 2.3.1.4. below.

2.3.1.4 External change agents

The contribution of school counsellors to the introduction of innovations is of great importance. According to Fullan (2001), the help which these key professionals provide during the introduction of innovations is more effective when they cooperate with the local leaders, such as the head teachers or district officers.

In the literature, there is substantial research which identifies and reveals the significance of school counsellors influencing innovations. As long ago as 1979 people recognised that outside facilitators had a very big influence on teachers adopting new ideas. For example "...research on the Pilot State Dissemination Program, in which field agents were used to stimulate knowledge utilization in seven areas of the United States, demonstrates the impact of outside facilitators on teacher adoption of new ideas" (Louis and Sieber, 1979, in Fullan 1991, p. 56). Furthermore, Fullan mentions another example of the impact of counsellors. In the larger DESSI study of 80 counsellors who worked with 97 local schools, Cox (1983, in Fullan, 1991) found that the counsellors: "made people aware of the existence of new practices; helped school people choose among a range of new practices; sometimes helped arrange funding; worked with local facilitators to develop plans for implementation; arranged and conducted initial training; and sometimes played a continuing support and evaluation role" (in Fullan 1991, p. 56). Even though this research is dated, it is still important today.

From the above, it is concluded that the role of head teachers, district officers and school counsellors is very important in the initiation phase of innovations. More specifically, the role of these people is important in encouraging and motivating teachers to introduce ICT into their school. Furthermore, it is quite important in the identification of funds for the creation of computer laboratories. For instance, in the Greek educational system the purchase of a computer laboratory takes place in direct collaboration between the head teachers and the district officers of the area (i.e. official paper G2/5644/22-10-98).

The next phase in the model of Figure 2.5 is the implementation phase which is discussed in the following section.

2.3.2 Factors affecting implementation

In the previous section the factors that affect the initiation of an innovation in relation to the key professionals: head teachers, district officers and school counsellors were presented. Now in this section the factors which affect the implementation phase are presented. More specifically, this section focuses on these factors which have a bearing on the role of head teachers, district officers and school counsellors.

According to Fullan's (2001) review of the literature of many research studies done in Canada and England, the factors which affect the implementation phase could be classified in three categories. The first category is related to the characteristics of the innovation or change project. The second category is related to local roles and the third one is related to the external factors. Figure 2.7, shows the sub-variables of each factor/category.

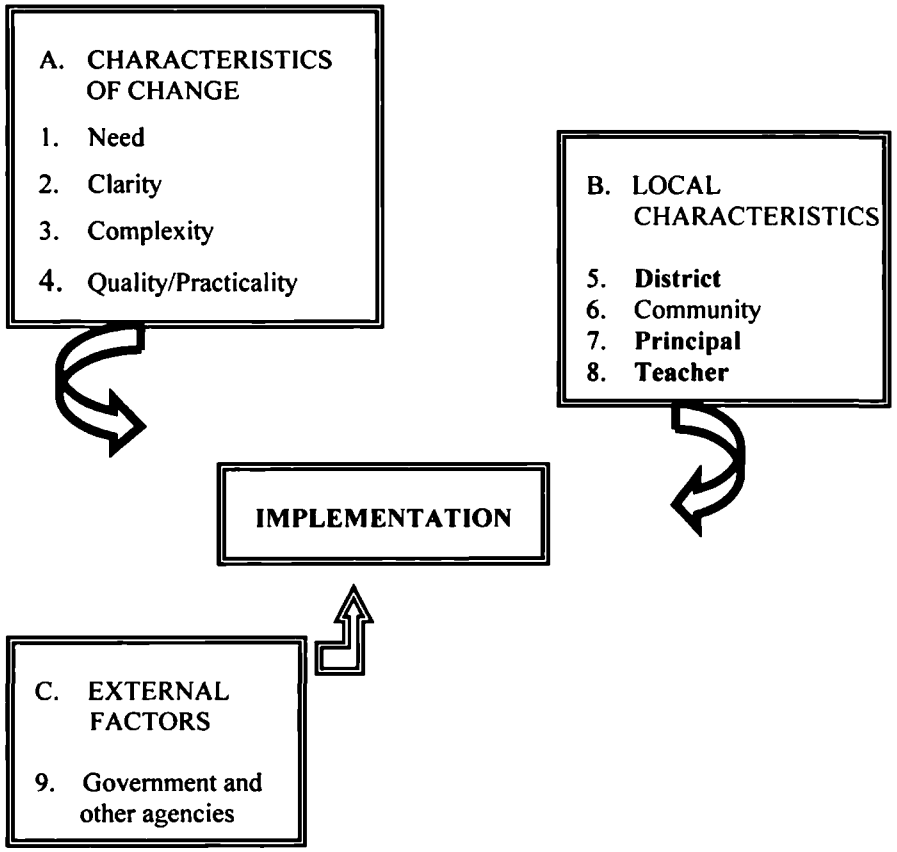

Figure 2.7 - Interactive factors affecting implementation (Fullan, 2001, p. 72).

In the above figure, we can see that in the second category, which Fullan calls "local characteristics", the factors that are related to this research exist. In other words, the head teachers, district officers, school counsellors and the teachers are factors that affect the phase of implementation. Previously, Fullan (1992) had studied the factors which affect the implementation phase in ICT which he classifies in two categories.

The first category is related to characteristics of the innovation/New Educational Technologies and the second one is related to the local conditions. He studied these factors in a case study about the implementation of computers within schools in Ontario, Canada. The factors of each category are presented below.

Table 2.1 - Factors influencing implementation (Fullan, 1992, p. 30).

Characteristics of the innovation/New Educational Technologies

1. Clarity and complexity
2. Consensus and conflict about the change
3. Quality and practicality of the change

Local conditions

4. **Central office direction, commitment and support**
5. Process for implementation and institutionalization
6. Professional development and assistance
7. Implementation monitoring and problem-solving
8. **Principal's leadership**
9. Community support
10 Environmental stability

In the above table the effect of the head teachers (see number 8), district officers and school counsellors (see number 4) are also identified. It seems that amongst the local factors concerning the support and help needed, the staff who work in the local offices of administration as well as the head teacher's leadership have an effect on the implementation of ICT in schools.

The important role that executive staff in education play in the implementation of ICT is confirmed by Akker et al., (1992). According to their study, the factors which influence the uptake of ICT could be classified in four categories:

- national (and/or state and/or district) context;
- characteristics of the school (organisation);
- external support;

- characteristics of the innovation itself.

In the above factors the authors point out that the characteristics of the school (organisation), the help and support which is given to teachers by the head teachers and district officers so that they can acquire hardware and software and organise seminars and other kinds of help are some of the most important factors which affect the success of the use of ICT by teachers.

Given the above, it can be seen that the factors which affect the implementation of an innovation and specifically of ICT are many. More specifically, research has shown that within these factors are included those that are related to the key professionals (i.e. the head teachers, district officers and school counsellors).

This section discusses these factors which are related to these key professionals in education, because this research investigated the effect of these people towards the use of the ICT by teachers. This section through the literature review presents the role of each of these factors during the phase of implementation and continuation. Moreover, this section discusses if any empirical study exists in the current literature, which examines if the attitudes of these staff affect the support of the introduction and implementation of ICT at schools.

Similarly, because this research focuses on the effect of these staff on the use of ICT by teachers, this chapter will firstly focus on the role of teachers during the innovations and mostly concerning ICT. More specifically, it is important to present the role of teachers during the introduction and implementation of ICT and mostly the factors which affect them positively or negatively concerning the use of ICT during the teaching process. Some of these factors are related to the executive staff in education.

2.3.3 The role of teachers

According to many studies, the teacher is the person upon whom the degree of the innovation's implementation depends. According to Fullan (2001), "educational change depends on what teachers do and think" (p. 115). Specifically, every innovation requires teachers to change in three dimensions: the possible use of new materials, the possible use of new teaching approaches and the changes in their beliefs and attitudes.

During the innovations and mostly during the implementation of ICT, there exist many factors which affect positively or negatively the use of ICT by teachers. These factors are presented later on. Many of them may affect teachers' intention and behaviour concerning the use of ICT in their teaching.

2.3.3.1 Understanding the need for change

Many research studies have shown that with regard to the implementations of innovations teachers often are not clear concerning the aims of the innovation itself. For example, an early case study conducted by Gross et al., (1971) of the introduction of an innovation in an elementary school (named Cambire Elementary) showed that the majority of the teachers had failed to implement the innovation for various factors. One of the important factors of the innovation's failure was that "...the teachers never obtained a clear understanding of the innovation" (p. 123). This lack of clarity about the aims of the innovation was later detected by Brown and McIntyre (1982). They found that the lack of clarity was of great importance to the implementation of a science curriculum in Scotland. The authors mention that "...if the concept has not been clarified, the teachers may simply ignore it and make no attempt to implement the new ideas" (p. 117).

Furthermore, as Fullan (2001) showed later in his results of many research studies in USA, Canada and England, teachers did not have a clear picture about the reason for the changes proposed and how these could be achieved. Therefore, not only did the teachers not have a clear idea of the reasons for implementation but they also had a number of other difficulties in using it, which are discussed in the following section.

2.3.3.2 Lack of knowledge/skills

For the success of introducing and implementing ICT in education, teachers must have adequate knowledge and skills on how to use ICT. The results of much research have shown that the lack of knowledge and skills of teachers concerning the use of computers are important factors that influence negatively the uptake of ICT (see Pelgrum and Plomp, 1991; 1993; Rahim and Mohamed, 1998; Jones, 2004).

Cox et al., (1988) indicated in their research of the factors affecting the uptake of computers in primary schools that many teachers were reluctant to use microcomputers

because they felt they had insufficient skills. Williams et al., (2000) in a study conducted in 300 primary and 100 secondary schools in Scotland to investigate teachers' needs for knowledge and skills in relation to the effective use of ICT found that lack of skills was one of the factors which inhibit the use of ICT by teachers. More specifically, they found that "...lack of skills in the use of databases and spreadsheets is seen as an inhibiting factor by more than 10% of primary school respondents" (p. 313) and "...lack of skills is a barrier to the use of the Internet, e-mail, computer conferencing, video conferencing, DTP and digital camera for more than 10% of secondary (non computing) teachers" (p. 315).

2.3.3.3 Problems with teachers' instructional roles - Computer training

Not only has it been shown that teachers have problems because of lack of skills of using computers as briefly discussed above, but also teachers often have significant problems regarding their instructional roles (Akker et al., 1992; Jones, 2004). For instance, Cox et al., (1988) found in their research that the teachers are characterized by "lack of knowledge of how or when to join in children's microcomputers activities..." (p. 176).

The UK IMPACT study (Watson et al., 1993a), which investigated the impact of Information Technology on children's achievements in primary and secondary schools, found that "many teachers did not understand the philosophy underpinning programs and were unaware of how to use them in pedagogic terms" (p. 61). More specifically, according to the findings of this research, some teachers using ICT:

- "...had difficulties in managing pupils' access to computing facilities consistent with the plan of the topic/lessons;
- often considered that computers were to be used to complement rather than change existing pedagogic practice, whether it is 'traditional' or 'progressive';
- were concerned about product or knowledge outcomes versus process and how this might relate to the demands, or expectations of, for example, the National Curriculum;
- were concerned about the inappropriateness of conventional tests/assessments for measuring some of the skills and understandings acquired in an ICT related environment.

- had naive views of the philosophy behind the software and the implications for its use;
- experienced difficulties in promoting collaborative work on tasks for groups of pupils;
- found it difficult to incorporate the pupil's work into the usual selection of coursework collected for assessment" (Watson et al., 1993b, p. 11).

In order to face these problems, the contribution of further professional development is very important for teachers. According to Reinen and Plomp (1993) "...there is a significant relation between the knowledge and skills base of teachers and training received" (p. 164). However, the results of studies (e.g. Pelgrum and Anderson, 2001) showed that the lack of sufficient training is a significant barrier for teachers in the integration of ICT into their teaching.

The training courses should be shaped in such a way as to provide the adequate knowledge not only in a brief time but also over a longer time period. According to Rhodes and Cox (1990), "...short courses are not able to provide the variety of experience necessary to make effective use of computers in the classroom" (p. 19). Also, during these courses there is a need for a balance between lecture and practice and clear objectives on how teachers can use the knowledge they acquire from the practical parts of these courses. "The research findings show that the majority of time on short Teachers' Centre courses was spent learning how to operate complex software, little time being available to consider curriculum applications" (ibid, p. 19). Preston et al., (2000) in a more recent study, conducted on 82 educators in England, found that there were "large correlations between the use of ICT in teaching score and the number of working conferences and longer award bearing courses that were attended" (p. 54). In other words, they found that "those teachers who had attended longer award bearing courses and/or working conferences used ICT more frequently in their teaching" (p. 66).

One of the factors that has been shown to have a negative effect on the uptake of ICT is the teachers' lack of time. This factor is discussed in the following section.

2.3.3.4 Lack of time

Research studies (see Cox et al., 1988; Preston et al., 2000; Pelgrum, 2001; Braak, 2001) have shown that time was a very important factor of influence and decided if teachers

would use ICT in their teaching. This lack of time is related to the lack of time in computer training, in lesson preparation for using computers, and in completing activities while using computers in teaching. For instance, Preston et al., (2000) carried out a study examining the factors relating to the uptake of ICT in teaching of 82 teachers in England. They found that "some of the teachers stated that using ICT in their teaching was time-consuming in terms of the preparation necessary and also during the lessons" (p. 40).

Similarly, Braak (2001) indicated in his research of the factors affecting the uptake of computers in secondary schools in Brussels that many teachers were reluctant to use ICT because they felt they had insufficient time to prepare lessons that used computers. Moreover, the lack of time as a negative factor in the use of ICT by teachers has also been investigated in another research study, conducted by the National Center for Education Statistics of United States Department of Education in 1999 in primary and secondary schools in the United States. It was found that problems with finding adequate time to learn about computers or to prepare lessons where computers are used is one of the most serious problems for teachers (NCES, 2000).

Another factor that influences the implementation of ICT is the lack of a sufficient number of computers in teaching together with educational software appropriate for the age of pupils. This factor is discussed in the following section.

2.3.3.5 Inadequate recourses

In addition to the previous problems about ICT innovation, research showed that many teachers do not use ICT in their teaching because they face problems such as lack of hardware and software (see Preston et al., 2000; Braak, 2001; Pelgrum, 2001; Pelgrum and Anderson, 2001; Jones, 2004). For example, Preston et al., (2000) found that "many of the teachers reported that there was not enough access to computers for ICT to be used as often as they would like and that there were difficulties associated with needing to reserve access to ICT resources beforehand as careful planning was needed to accommodate every teacher's needs. Other teachers also stated that when they did have access to computers there were not enough for all the class" (p. 39).

Another research into the use of computers in schools has shown that the insufficient number of computers is still one of the biggest obstacles to the integration of ICT in education. For instance, in a study conducted in 1999 by the National Center for Education Statistics of United States Department of Education, (see Section 2.3.3.4), among other issues, it was also found that lack of enough computers was considered to be one of the most serious problems for teachers in using ICT in their teaching (NCES, 2000).

More recently, an international study on the use of computers in schools in 26 countries was carried out by the International Association for the Evaluation of Educational Achievement (IEA) (Pelgrum, 2001). The head teachers and the technology experts in the schools were asked about their reasons for not using computers in schools. The most frequently mentioned problems were "...insufficient number of computers ...insufficient peripherals, not enough copies of software, and insufficient number of computers that can simultaneously access the WWW" (p. 173).

2.3.3.6 Support from the whole school

According to Fullan (2001), the results of many research studies have shown that the introduction and implementation of an innovation are more effective when the school as a whole is engaged in it. According to Cox et al., (1999) "...this means that all the teachers are involved in the decision to adopt ICT in the school and are supportive of any individual teacher going on a course and willing to learn from their new knowledge and skills when they return. If the school, and particularly the head teacher, are not committed to adopting change and particularly ICT, then if one teacher goes on a course, the rest of the school sets up antibodies to any new ideas which the unfortunate teacher brings back into the school" (p. 3). The support from head teachers, district officers and school counsellors is discussed in detail in Sections 2.3.4, 2.3.5 and 2.3.6.

As we have seen in previous sections, the lack of knowledge, skills, hardware, software, time and the lack of good training opportunities are some of the more important factors which influence negatively the process of implementation of ICT in education by teachers. On the other hand, there are other factors that influence positively the role of teachers during the innovation of ICT and motivate them to use it effectively in their teaching activities. These factors are the communication and interaction between

teachers (e.g. Underwood, 1997) and the support from administrators (e.g. Pelgrum and Plomp, 1991; 1993; Fullan, 1992; 2001), the computer experience of teachers and the opportunities for training programmes (with technical-pedagogical/instructional aspects) (e.g. Rhodes and Cox, 1990; Preston et al., 2000).

2.3.3.7 Teachers' attitudes towards computers and the use of ICT in teaching

The results of many studies have shown that the implementation of ICT in schools depends on teachers' attitudes towards computers (Jones, 2004). For this reason, teachers' attitudes were studied in different countries (e.g. Pelgrum and Plomp, 1991; 1993) and were measured with different instruments (see Chapter 3, Section 3.4). For example, previous international study by Pelgrum and Plomp (1991; 1993) conducted in 21 countries showed that teachers with positive attitudes towards computers were more likely to use computers frequently in their teaching.

This finding is also supported by more recent studies. Most specifically, research by Williams et al., (2000) found that there was significant correlation between levels of use of ICT in teaching and teachers' attitudes towards computers. In other words, teachers who had very positive attitudes towards computers tended to use ICT more often in their teaching. In another more recent study by Shapka and Ferrari (2003) the researchers found that the 56 preservice teachers in their research with very high computer attitudes were more likely to use computers.

Factors affecting teachers' and other samples' (e.g. students) attitudes towards computers were examined by many research studies. For example, Loyd and Gressard (1986) found that positive attitudes towards computers were positively correlated with teachers' computer experiences. Gardner et al., (1993) found that computer anxiety was a major cause of resistance to using computers in schools. In addition, in investigating the changes in preservice and inservice teachers' attitudes towards computers, Yildirim (2000) found that teachers' attitudes such as anxiety, confidence and liking, significantly improved after the computer literacy course. In another study by Shapka and Ferrari (2003) the researchers found that computer training positively correlated with preservice teachers' attitudes towards computers.

An earlier review of the literature on attitudes towards computers by Dupagne and Krendl (1992) showed that teachers' attitudes towards computers during the 1980s were positive. In addition, teachers' attitudes were also positive, as indicated by other studies during the 1990s (e.g. Pelgrum and Plomp, 1991; 1993; Williams et al., 2000).

In addition to attitudes towards computers, many studies using the framework of the Theory of Planned Behaviour (TPB) (see Chapter 3, Section 3.5.3) and Technology Acceptance Model (TAM) (see Chapter 3, Section 3.5.2) measured teachers' behavioural beliefs or attitudes towards using ICT in their teaching. For example, Czerniak et al., (1999) used the TPB to examine the influence of science teachers' beliefs on their intention to use educational technology in their classrooms. They found that teachers generally possessed positive beliefs and attitudes concerning the use of technology in their teaching. Most specifically, teachers believed that technology will motivate students in science classes, help students learn new techniques and skills, provide students with knowledge and skills they will need the rest of their lives and provide a variety of instructional strategies to meet more students' needs. However, Czerniak et al., (1999) found that these beliefs did not have any statistically significant influence on teachers' intention (see Chapter 3, Section 3.5.5).

In another study, Preston et al., (2000) used the TAM model in order to measure teachers' attitudes towards using ICT in teaching. Most specifically, they measured teachers' perceived ease of use (i.e. perceptions of factors which hinder/support the use of ICT) and perceived usefulness of using ICT in teaching. Their findings showed that the great majority of teachers who use ICT in their teaching very often found ICT relatively easy and found ICT to be useful to them (e.g. "it has given me more confidence with IT", "it gives me more prestige in school"), their teaching (e.g. "using IT in my teaching is enjoyable", "using IT has improved my presentation of materials") and their pupils (e.g. "using IT makes lessons more fun for pupils", "using IT increases pupils' motivation").

The introduction and implementation of an educational innovation does not only depend on the role of teachers but also on the role of other persons in the school environment as well as in the local area. These persons are the head teacher, the district officer and the school counsellor. According to Fullan (2001), the role of these educators is included

among the factors that influence all phases of an innovation (see Figures 2.6 and 2.7). In the following sections the role of these educators is discussed, beginning with the role of head teachers during the innovation of ICT as well as the effects of their attitudes on the uptake of ICT.

2.3.4 The role of head teacher

In the last 30 years, a number of studies have been conducted in many countries in order to investigate the effect of head teachers on the educational innovations (see Havelock and Huberman, 1977; Hall and Hord, 1987; Bryk et al., 1988; Day et al., 2000). The results of these studies show that although the role of head teachers differs among the countries, however it is important not only during the initiation phase of an innovation but also during implementation and continuation (Fullan, 2001).

Furthermore, the role of head teachers was also found to be important in some research conducted in order to investigate the factors that influence the uptake of ICT in schools. The results of these studies have shown that in the innovation of ICT, the help from head teachers is necessary in providing facilities for training, purchase of software, hardware and other equipment, the rearrangement of timetables etc (Akker et al., 1992). Moreover, one of the results of these studies on the uptake of ICT is that uptake is influenced by the attitude of the head teacher towards ICT. In schools where head teachers had positive attitudes towards ICT, it was found that the uptake of ICT was high (Cox et al., 1988). Some of the results of these studies are discussed in the two following sections.

2.3.4.1 Interest and support

Numerous research studies have found that head teachers' interest and support is an important factor for the promotion of ICT use in schools. For example, Carmichael et al., (1985, in Fullan, 1992) studied the use of Logo by thirteen teachers in nine schools and they found that the role and the interest of head teachers were influential in supporting teachers to take up and use computers in the school. Specifically the researchers found "...that project teachers 'felt more secure trying out new ideas' where their principal gave active support" (in Fullan 1992, p. 50).

Also Fullan summarizes the kinds of support given by head teachers during the implementation of computers in another study: "...leadership on project steering committees, giving high priority to the project in the school, facilitating staff

development, including provision of release time for training and meetings, getting early users to train other teachers, reorganizing school timetables to schedule student access to computers, ongoing communication with all parents and support for involvement of interested parents, maintaining open-door policy for visitors, rearranging facilities to accommodate implementation" (ibid, p. 51).

Fullan (1992) studied the role of head teachers in the implementation of computers in schools in Ontario in Canada and found similar results to the above. For example, he found, from interviewing ministry officials, that head teachers were key players in the success or failure of implementation of computers. Also, according to ministry officials, the head teachers needed to understand the aims of the implementation of computers, to be familiar with their use and to encourage teachers to use the new technologies in their learning and teaching activities in Ontario schools in order to support their teachers in adopting computers into their practice.

Similarly, in an earlier research study Chandra et al., (1988), studied the factors which influenced the introduction of computers in a secondary school in the United Kingdom. The results of this case study in a comprehensive school showed that the leadership of the head teacher played an important role in the implementation of computers. "It was discovered that the autocratic style of leadership provided the lead when people needed it, and the laissez-faire style served needs when teachers perceived them. It was evident that teachers initially needed guidance before they would venture to use computers in their teaching" (ibid, p. 61).

The support and interest of head teachers in the implementation of ICT in schools was studied at the beginning of 1990 in the Impact Study. In this study, whose aim was to evaluate the impact of Information Technology on children's achievements in primary and secondary schools, Watson et al., (1993b) found that the interest, the influence and support from the head teacher was important but not essential. For instance, according to findings of this research the influence of head teacher and head of department in the secondary schools "...was viewed as important, but this typically reflected a facilitating role in the acquisition of resources rather than a pro-active stand in favour of the integration and implementation of IT" (ibid, p. 1).

In addition, between 1989 and 1993, four case studies were undertaken by Veen (1995) to investigate "the day-to day practice" of teachers in a Dutch school where ICT was being introduced in the classroom. This included the investigation of the factors that influence the teachers' use of computers. The researcher found that school factors play an important role in the uptake of computers by teachers. Specifically, the role of the head teacher was one of these factors. According to Veen (1995), the head teacher "...held a positive view on information technology in education and she provided the necessary technical support for the teachers by allocating a technical assistant for twenty hours a week" (ibid, p. 178). In addition, the head teacher gave moral support to teachers who showed interest in their efforts many times.

Granger et al., (2002) recently conducted a study about the factors contributing to teachers' successful implementation of ICT in four Canadian schools. They found that the encouragement of head teachers was a positive factor for teachers in the use of ICT in their teaching.

From the above it is shown that the support of teachers by the head teachers during the use of ICT and the ongoing interest of these leaders for the integration of the innovation are important factors which affect the implementation phase. Moreover, one of the factors that affect the uptake of ICT is the attitudes of head teachers towards ICT. This is discussed in the following section.

2.3.4.2 Head teachers' attitudes towards computers

The attitudes of head teachers are of particular interest because the research literature on attitude-behaviour relations (see Chapter 3) suggests that attitude is an important precursor to behaviour (see Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980; Ajzen, 1989; 1991; 2002).

According to the results of a previous research study, head teachers' attitudes strongly influenced the implementation of computers in the curriculum. For example Cox et al., (1988) studied the factors affecting the uptake of computers in eight London primary schools and found that the attitudes of head teachers was one of the major factors that influenced the uptake. According to the researchers "...schools investigated where the Head had a positive attitude to information technology in education, and also had a

commitment to the introduction of the microcomputer use throughout the school, showed a marked difference to schools where the head teacher had a negative or neutral attitude with no commitment to encouraging microcomputer activities" (ibid, p. 177). In addition, Rhodes and Cox (1990) studied the factors that influence the use of computers with particular emphasis on teacher training. They found that "...the uptake of computers was highest in schools where the head teacher had a positive attitude to computers and an active interest in promoting their use throughout the school" (p. 12).

The interest in the attitudes of head teachers towards ICT was taken up by many researchers in the beginning of the 1990's. For example, Pelgrum and Plomp (1993) studied the introduction and use of computers in 21 education systems around the world. One of the objectives of that research was the measurement of attitudes of head teachers towards computers. Their results showed that the majority of head teachers at all educational levels had positive attitudes towards computers in education. Specifically, there were small differences between the attitudes of the head teachers at higher educational levels and those of head teachers at lower educational levels. The head teachers at higher educational levels had more positive attitudes. In addition, this research showed that the head teachers of schools that use computers have more favourable attitudes towards the educational use of computers than head teachers of schools that don't use computers in the educational process.

According to the results of the above research, Pelgrum (1993) found that "...there is a clear association between the attitudes of head teachers and the emphasis on computer integrated learning within the school. This finding lends some support to the hypothesis that schools whose head teachers have positive expectations regarding the educational impact of computers tend to emphasize computer integrated learning more than schools with head teachers who are less positive" (ibid, p. 209).

Referring to the above findings, it is useful to consider the specific findings in Greece with respect to the attitudes of secondary head teachers towards computers. According to Wolf and Kontogiannopoulou-Polydorides (in Pelgrum and Plomp, 1993) the attitudes of Greek head teachers in secondary education towards computers were less positive in comparison to the attitudes of head teachers coming from other countries. The less positive attitudes of Greek head teachers can be explained through the fact that at the end

of 1980s', when the study was conducted, ICT had been introduced only in some schools in Greece and not yet in all secondary schools. Consequently, it can be concluded that during that time educators had only some experience in using ICT and, therefore, less positive attitudes towards it.

Williams et al., (1998), who have investigated the use of ICT in 300 primary schools and 100 secondary schools in Scotland found that "...the attitude and support of senior management, particularly head teachers, is seen by teachers and education authorities as a key to the development of teachers' ICT skills and knowledge" (p. 11). A more recent study by Pelgrum and Anderson (2001) concerning 26 educational systems, found that head teachers tended to have a positive attitude toward ICT usage in their respective schools. However, "the depth of that opinion varied considerably. In some countries, school leaders were very positive; in others were only very slightly positive" (p. 200).

As we have seen from the above, the support of head teachers for teacher training, for the acquisition of adequate resources to help schools integrate and implement ICT, is very important. In addition, the attitudes of head teachers are a crucial factor that influences the uptake of ICT. According to the findings of the above research in the schools where the head teachers had positive attitudes towards the introduction of ICT in education, the uptake was higher than in schools whose head teachers had negative or neutral attitudes.

Sections 2.3.3 and 2.3.4 examined the two factors shown in Figure 2.6 and 2.7, which refer to the role of teachers and head teachers during the initiation and implementation phase of innovations. Further on, the other two change agents that also influence to a great extent the introduction and implementation of innovations in schools will be discussed. These are district officers and school counsellors.

2.3.5 The role of district officers

According to Fullan (2001), the educational systems of many countries, no matter if they are centralised or decentralised, have a local district officer whose duty is to organise the correct management of the schools of his/her area and also to facilitate and support the introduction and implementation of educational innovations. For example, there are 149 district officers in the Greek primary education, who in order to succeed in the previous mentioned purpose are always in working with the school counsellors and the head

teachers of the schools in their area (Ministry of National Education and Religious Affairs, 1995).

The role of these executives has been enlarged not only to promote educational innovations in general but also ICT innovation in particular. According to Fullan (1992), "...administrators have a key responsibility initially to help confirm and clarify the need for change. Implementation is more likely to happen when there is clear consistent communication and pressure from administration, both initially and during implementation" (ibid, p. 38). Moreover, according to Akker et al., (1992), the help and support of district officers in cooperation with head teachers is essential for the ICT innovation "in providing for facilities for training, the purchase of hardware and software, the rearrangement of timetables and other organisational measures" (ibid, p. 67).

As far as the **attitudes** of district officers towards ICT and their effects on the uptake of ICT in their schools are concerned, no references have been found in the literature. However, this study assumes that as long as the attitudes of head teachers influence the the uptake of ICT in schools (see Section 2.3.4.2.), in the same way the **attitudes** of district officers might influence the support of the uptake of ICT in their schools. The role of district officers generally during the educational innovations as well as in the ICT innovation in education in particular is to be discussed further on in this section.

In the literature review of the educational changes there are some studies that reveal that when the district officer shows particular interest in implementing the innovation and supports it in an active way, then better results are observed in schools. For instance, Huberman and Miles (1984) studied the innovations in 146 schools in 12 states of the USA and found that the district-level dynamism for school improvement came from the administrators. The authors observed that "...the central office administrators thus became the prime advocate of the new practice, often reaching directly into the schools to implement it and thereby leaving the building principals to play a secondary role" (ibid, p. 271). Similar findings were found in LaRocque and Coleman's (1989, in Fullan, 2001) analysis of district ethos and quality in school districts in British Columbia. In the schools where district officers had a "remarkable presence" and continuous cooperation with head teachers it was found that innovations were better implemented. In particular,

it was found that "the district administrators used their time in the schools purposefully to engage the principals in discussion on specific topics... They helped the principals interpret the data and identify strengths and weaknesses, and they offered advice and support when necessary" (LaRocque and Coleman, 1989, p. 181 in Fullan, 2001).

On the other hand, there are studies in the literature that show that district officers did not support the innovations as much as they should when the innovations were implemented in their schools or they followed a clarified policy towards them. For example, in a study of the implementation of mathematics reform in nine districts, Spillane (2000) found that "even when districts endorse the reform, and focused on all its components, they often lacked a deeper understanding. Thus, implementation was weak and piecemeal" (in Fullan 2001, pp. 173-174). Moreover, in McLaughin and Talbert's study of high schools, a head teacher "complains that district policy is neither very clear nor consistent with the schools' realities, yet it permeates the school" (in Fullan 2001, p. 120).

As the literature on educational changes shows that district officers, according to their role, influence the innovations negatively or positively, in the same way there are studies in ICT innovation, which show similar results. One of the early studies that shows lack of support by district officers was conducted by Larter and Fitzgerald (1983, in Fullan, 1992). They studied the introduction of microcomputers in elementary schools in Toronto and found that there was "...a pattern of general support from the central office for grass-roots microcomputer adoption and use, without specific policy directions to guide utilisation and implementation assistance" (p. 40, in Fullan 1992). In another study in the late 1980s, Burdett (1987) studied four local education authorities to investigate their role in creating policies for the use of microcomputers in education in the institutions for which they were responsible. Among the persons whose role in creating a policy of using computers in schools was investigated were also the district officers. The results of the study showed among others things that from four local educational authorities only two had really created a policy in using computers in schools. According to Burdett (1987), the use of computers in schools of two of the LEAS to a great extent was due to the support provided by the district officers.

Similarly, the role of district officers was studied by Fullan (1992) in the implementation of computers in Ontario schools. According to Fullan (1992), the administrators supported and helped the schools to a large degree but many times there was a lack of clear policy vision.

In a study conducted by Williams et al., (1998) in 300 primary schools and 100 secondary schools in Scotland, to investigate the use of computers by teachers, the role of educational authorities was investigated as well. Although the study does not particularly investigate the role of district officers, it probes into the role of the personnel who work for the local educational authority. Some of the results found are worth mentioning here. These results show that the policy implemented by educational authorities concerning the use of ICT in schools indirectly reflects the role of district officers in creating this policy. According to Williams et al., (1998), "amongst the 27 authorities who responded to the questionnaire there was 100% agreement with the following statements:

- this EA encourages the use of ICT by all teachers and pupils,
- this EA encourages the use of ICT across the school curriculum,
- pupils in our schools are generally enthusiastic about ICT,
- this EA is very supportive of ICT initiatives/purchases,
- ICT helps administrative work in our schools,
- appropriate use of ICT can enhance teaching" (ibid, p. 6).

According to Williams et al., (1998), some interviews with the personnel of educational authorities took place in this study. The results of these interviews showed that "...they also have highly positive attitudes towards ICT in schools" (ibid. p. 6). From the above results it can be observed that educational authorities in Scotland supported the use of computers in their schools and had positive attitudes towards computers.

Additionally, the role of LEAs and indirectly that of district officers are also mentioned in the recent report entitled "ICT in schools, the impact of government initiatives" by Office for Standards in Education (2001). According to OFSTED (2001), "when the Government introduced the NGfL and other initiatives, LEAs were generally very keen to respond positively. Many senior LEA officers saw ICT as important, which, in turn, led to effective bids". However, later not all of these LEAs "had the necessary

understanding of schools and their particular equipment needs. Delays were caused where ...LEAs were slow to commit the necessary matched funding. In producing an ICT section in their Educational Development Plan (EDP), a number of LEAs and their commercial partners made wrong assumptions about schools' needs, which also led to delays or decisions taken by schools on the basis of poor or partial advice (ibid, p. 14).

In this section, the role of district officers in educational innovations and particularly in the ICT innovation in schools was discussed. According to Fullan (2001), district officers are among the factors that influence the initiation (see Figure 2.6) and implementation (see Figure 2.7) phase of an innovation. The conclusion that arises from the studies discussed in this section is that support for ICT usage from district officers will help to create a school environment that encourages teachers to use ICT in their teaching. For example, their support on finding money for hardware and software is essential in the innovation of ICT in schools. When the innovation is introduced, district officers should think about the training of the teachers who will implement the innovation. During the implementation, continuous contact and cooperation with the schools of their area and mainly with head teachers are essential in order to cope with the problems that arise.

As far as the factors that influence the initiation and implementation phase of an innovation are concerned, school counsellors are also included. According to Fullan (2001), schools counsellors are among the persons who help teachers implement the innovation in practice as long as they possess the appropriate educational knowledge and know well all teaching methods. The role of the school counsellor in educational changes is discussed in Section 2.3.6 below.

2.3.6 The role of school counsellors

According to Fullan (2001), in addition to head teachers and district officers, school counsellors also help implement and introduce educational innovations. School counsellors are divided into two categories: external and internal. External ones come from the country's Ministry of Education, from Universities and other professional unions. The internals are: "...subject consultant, curriculum co-ordinator, program adviser, resource teacher, organization development specialist, change agent, project director..." (Fullan, 1991, p. 215). This study focuses on internal school counsellors. For

example, in the Greek educational system, on which this study also focuses, they work in local educational authorities and among their responsibilities is to help introduce and implement innovations in schools and train the educators not only in innovations' issues but also in issues of teaching and educational interest (Ministry of National Education and Religious Affairs, 1995).

Precisely because their work is quite complicated and difficult, the Greek Ministry of Education selects school counsellors through a variety of criteria. Studying these criteria in Greek legislation, it can be found that they are similar to those suggested by Miles et al., (1988) in selecting school counsellors. They suggest that selection criteria should include: "...interpersonal ease, previous educational background (broad-based), educational content expertise, previous experience in training or teaching adults, a personal style that emphasizes both initiative-taking and energy, and prior administrative or organizational experience" (in Fullan 1991, p. 225).

The role of school counsellors in educational innovations, as results of many studies have shown and some of which are to be discussed further on in this section, is important in teacher training but also in supporting them with useful advice in teaching and educational issues. According to Fullan (2001) school counsellors "...must base their work on both a high quality theory of learning and a high quality theory of action ...A theory of pedagogy focuses on assumptions about learning, instruction, and performance; a theory of action tends to local context such as the conditions under which model will work" (p. 187).

Some examples which support the importance of school counsellors in educational changes will be discussed further on. Huberman and Miles (1984) studied among other things the role of schools counsellors in 12 case studies and found this role to be important in the implementation of innovations. For example, "...in the short run, assistance contributed to the development of support, technical help, and clarity about the innovations being implemented. In the longer run, assistance contributed to greater mastery, confidence, and ownership" (in Fullan 1991, p. 217). Additionally, Cox (1983, in Fullan, 1991) studied the role of 80 external and 78 internal school counsellors in 146 schools, in which 61 innovations had been implemented. Cox found out that the majority

of 78 schools counsellors were active and effective during the innovations in schools. Some of the actions taken that show how effective their role is include:

- "...become familiar with the needs of students in individual schools in their district;
- located and helped select the new practice;
- knew the content of the new practice, its purpose, and the benefits that were to result from its use;
- helped arrange and conduct training in the new practice, working with external assistants;
- arranged funding and other support from the district or other sources;
- obtained endorsements for the new practice from the superintendent, school board, principal, and teachers;
- worked with teachers using the practice in the classroom, working out "bugs" and overcoming obstacles;
- assisted in evaluation; and helped plan how to continue and institutionalize the new practice..." (in Fullan, 1991, pp. 217-218).

Ross and Reagan (1990) studied the role of school counsellors in 12 school boards in Ontario. They mainly divided school counsellors into two groups: experienced effective counsellors and inexperienced counsellors. They found that "...expert consultants derived their initiative from a system plan, worked with teams and organizations ...conducted wider searches for information, planned workshops in a series vs. one shot events, used a variety of strategies tailored to the range of individuals and situations, focused on practice and feedback ... " (in Fullan, 1991, p. 218).

The above three supporting examples from the literature review of educational changes show the importance of the school counsellors' role in innovations. As far as the role of these persons is concerned in the innovation and mainly in primary education, where this study also focuses, it can be assumed that it is equally important in teacher training but also in providing consultants or teachers in issues concerning using ICT in teaching. Additionally, because school counsellors work many hours with teachers in an effort to discuss and confront problems regarding their teaching, it can be assumed that their attitudes towards computers might affect the uptake of ICT by teachers.

In previous sections, some of the factors that influence the introduction and implementation of an innovation were studied. According to Fullan (2001), these factors are teachers and head teachers in school as well as district officers and school counsellors in each area. The most important conclusions arising from the discussion developed in this chapter be summarised in the following section.

2.4 CONCLUSIONS

The aim of this research was to investigate the factors that influence teachers' intention and behaviour to use ICT in their teaching as well as head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools. In order to understand how these executive staff can affect the educational system of a country, the changes in schools and the models of changes were examined. What was mainly explored was how these changes are applied and the role of the head teachers, district officers and school counsellors in education in the introduction and implementation of innovations.

At the beginning of this chapter, the main models of changes were presented. These, according to Havelock (1973, 1976) and Havelock and Havelock (1973) are: the Research, Development and Diffusion Model (RD&D), the Problem Solving Model, the Social Interaction Model and the Linkage Model. In these models, Havelock does not present clearly the roles of the head teacher, of the district officer and of the school counsellor, which are incorporated into the terminology of change agents. The results that are derived from the study of the above models are that the changes could not be introduced and applied without success if they did not have the support and help of change agents.

According to Havelock, the role of change agents is different in each model. For example, in the Social Interaction Model which focuses mostly on the communication and the interaction between the members of the school, the head teacher could place special emphasis on the role of the facilitators of change. In this model, the head teacher can inform teachers about the changes and can help them to bring about the changes. Moreover, the role of the executive staff in education in the Problem-Solving Model is very important. For example, in this model the school counsellors are in close cooperation with the teachers in order to solve the problems that arise from the

introduction and application of innovations. The role of school counsellors in the Linkage Model is also very important as they try to inform, help and encourage teachers to put into practice the innovation.

Finally, in the Research, Development and Diffusion Model, the roles of the head teacher and of the district officer are more important prior to the application of the innovation. The main idea of this model is that once the teacher has decided to adopt the educational change, no further assistance is needed for its implementation. Furthermore, the literature review focuses on more recent research in the area of changes like that of Fullan (2001).

According to Fullan, educational change takes many years, not only regarding the decision making process but also when innovations are applied and adopted. According to his theory, changes consist of four phases. As was mentioned in Section 2.3, these phases are the following: the initiation, implementation, continuation and outcome. The initiation phase "consists of the process that leads up and includes a decision to adopt or proceed with a change". The second phase is called implementation or initial use and "involves the first experiences of attempting to put an idea or reform into practice". The third phase is called continuation, incorporation, routinisation, or institutionalisation. This phase "refers to whether the change gets built in as an ongoing part of the system or disappears by way of a decision to discard or through attrition" (ibid, pp. 47-48). Finally, in the outcome phase the effect of the innovation in the school process is assessed. For instance, in this phase we can see whether the knowledge of pupils has improved or if their attitudes have changed.

The conclusions drawn from the presentation of the phases in this chapter are that, apart from the fact that each of them needs time to be implemented; each one interacts with the other. These phases are not linear but overlap with each other. For example, the results of the application of ICT in the stage of implementation will determine to a high degree if the innovation will be continued in the next stage (continuation). The main conclusion of these stages is that there are many factors which determine the success or failure of the innovation.

From the literature review, Fullan (2001) mentions eight factors which affect the initiation phase. Of these factors, the access to innovations, advocacy from central administrators, the teachers' advocacy and external change have a direct relation to this current research. According to these factors, the contribution of the executive staff (i.e. head teachers, district officers and school counsellors) in education is of great importance, mainly, in order to inform teachers about innovations as well as to encourage them to introduce the innovation. They achieve this not only because of their personal contact but also through official meetings, seminars and conferences. Moreover, the support and encouragement of this executive staff is very important in finding funds for the support of the innovation. Concerning ICT, this executive staff could contribute not only to the support and encouragement of teachers to adopt the innovation in their teaching processes but also to finding funds in order to acquire hardware and software.

The factors which affect the phase of implementation are, according to Fullan (2001), divided into three categories of factors: a) characteristics of change, b) local characteristics and c) external factors. In the category which concerns the local characteristics the head teacher, the district officer and the school counsellor are included. Moreover, it seems that these factors affect the uptake of ICT according to Fullan (1992) and Akker et al., (1992) who studied the introduction and implementation of computers.

The role of teachers was presented here first because this research is also concerned with the influence of head teachers, district officers and school counsellors on teachers' intention and behaviour to use ICT in their teaching. According to the results of much research, the teacher is the centre of the innovation. From the literature review it seems that teachers do not have clear aims about the innovation and, frequently, they do not know how to apply it. Moreover, they face problems in the use of ICT in their classroom because many of them do not have adequate knowledge and skills of how to use it and how to use it pedagogically. Furthermore, most courses for their further training till now focused on the technical use of ICT and not on its pedagogical use. Many of these problems can be overcome if there is support from the whole school. The cooperation between teachers, but mostly the support from the school's head teacher, district officer and school counsellor are regarded as factors which contribute to the successful use of ICT. In addition, the success of the introduction and implementation of ICT in teaching

depends on teachers' attitudes towards computers (see Jones, 2004). Previous studies showed that teachers with positive attitudes towards computers were more likely to use computers in their teaching.

According to the results of much research, the head teachers, district officers and school counsellors because of their authority and of their increased responsibilities, can help the introduction and implementation of the innovation to succeed. Most specifically, the results of previous research in ICT in education showed that these educators' support and help in acquiring recourses and software, in arranging adequate teacher training programmes and in organising curriculum change and innovation are essential for the successful adoption of ICT by teachers in their school. What is important and has great relevance for the current research is that according to the results of a previous study like that of Cox et al., (1988), it was shown that the attitudes of head teachers towards ICT affect directly the uptake of ICT. In schools where the head teachers had positive attitudes towards ICT, the uptake was higher compared with the schools where the attitudes of head teachers were neutral or negative. Moreover, according to the results of much research the administrators and the school counsellors affect to a great degree the introduction and application of innovations. The first could help to inform teachers about the innovation, to find money for the application of the innovation and to solve the problems that arise.

Particularly, in the innovation of ICT, some preconditions are necessary: the creation of computer laboratories, the purchase of adequate software and hardware. Moreover, the school counsellors in cooperation with the district officers and head teachers could help to organise programmes of seminars and also help teachers to overcome the problems they face during the teaching process.

To conclude, from the literature review in this chapter, it appears that the changes in schools and mainly the innovation of ICT are complex processes which cannot be implemented without the help and support of head teachers, district officers and school counsellors. These people, who are considered to be the means of authority in many educational systems, could help and support the teachers to use ICT in their teaching. In addition, according to the literature review, it has been shown that the attitudes of head teachers affect the uptake of ICT to a great extent. However, from the literature review

no research has been found which refers specifically to the effects of the attitudes of the district officers and of school counsellors. In addition, because, according to the literature, this staff may have an effective role in innovation, this research assumes that the attitudes of the district officers and of the school counsellors might affect the support of the uptake of ICT, in a similar way to the attitudes of head teachers shown in previous research.

This hypothesis led me to the next chapter where the two relevant theories of attitudes are reviewed: the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB).

CHAPTER 3
ATTITUDES TO ICT IN EDUCATION: THEORIES AND EVIDENCE

3.1 INTRODUCTION

As discussed in Chapter 1 (see Section 1.4), one of the objectives of this study was to investigate the effect of the attitudes of head teachers, district officers and school counsellors on their support of the uptake of ICT in their schools. This chapter discusses the main theories related to attitudes and behaviour, which come from social psychology. The two theories considered relevant to this research are the Theory of Reasoned Action and the Theory of Planned Behaviour. According to these theories, as is discussed in Sections 3.5.1 and 3.5.3 people's attitudes are an important precursor to behaviour. These theories were used in this study in order to investigate the effect of the attitudes of executives in education on the support of the uptake of ICT in Greek primary schools.

3.2 DEFINITIONS OF ATTITUDES

Attitude has been a difficult concept to define adequately because of the different definitions in the literature. By 1901, attitude was defined as "readiness for attention or action of a define sort" (Baldwin, 1901, in Ajzen and Fishbein, 1980, p. 13). However, Thurstone (1931) defined attitude as "the affect for or against a psychological object" (in Ajzen and Fishbein, 1980, p. 14).

One of the most commonly used definitions of attitude is by Alport (1935). He defined attitude as "An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Alport, 1935 in Triandis, 1971, p. 2).

More recently, Zimbardo and Leippe (1991) defined attitude as: "An evaluative disposition toward some object based upon cognitions, affective reactions, behavioural intentions, and past behaviours...that can influence cognitions, affective responses, and future intentions and behaviours" (Zimbardo and Leippe, 1991, in Simonson and Maushak 1996, p. 985). The above definitions suggest that attitudes have three

components. These are the cognitive component, the affective component and behavioural component. These three components of attitudes are presented below.

3.3 ATTITUDES AND COMPONENTS

By the late 1950s, attitudes were viewed as complex systems with three components: a) a cognitive component, b) an affective component and c) a behavioural component.

The cognitive component of an attitude "is conceptualized as a person's factual knowledge of the situation, object, or person, including oneself" (Simonson and Maushak 1996, p. 986). According to this definition, we can see how much a person knows about a topic. For example, the cognitive component of computer attitude would be based on the knowledge that one has about computers.

The affective component of attitude "is said to consist of a person's evaluation of liking of, or emotional response to some situations, objects, or person. Affective responses reflect one's attitude with sensations of pleasure, sadness, or other levels of physical arousal" (Simonson and Maushak 1996, p. 986). For instance, the affective component of computer anxiety would be based on a person's liking of the computer and his feelings when he uses one. The above three components of attitudes are presented in the following Figure 3.1.

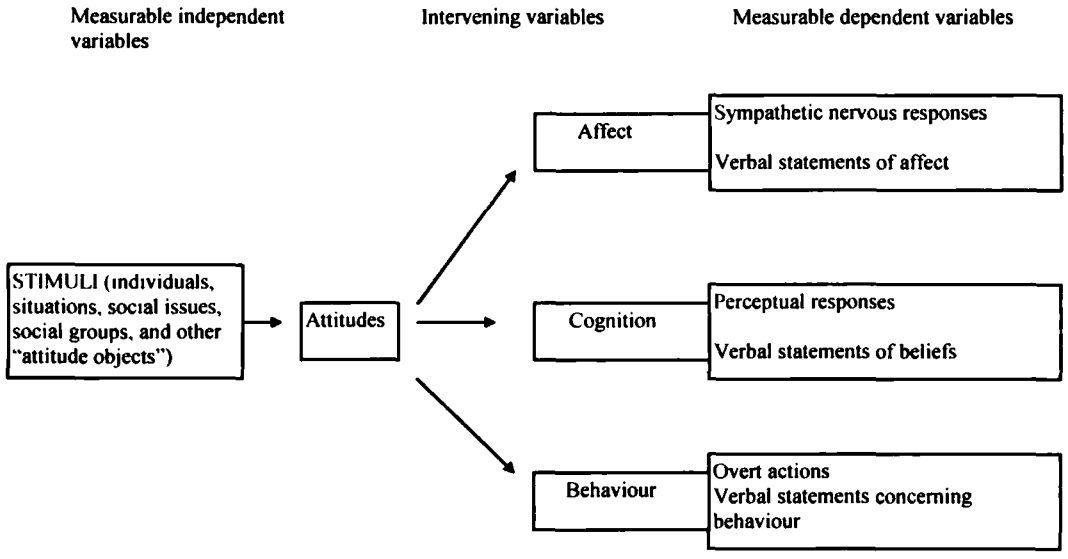

Figure 3.1 - Three-component view of attitude. (From Rosenberg et al., Attitude Organisation and Change. New Haven: Yale University Press. 1960 Yale University Press, Inc.) (in Ajzen and Fishbein, 1980, p. 19).

The behavioural component of an attitude "involves the person's overt behaviour directed toward a situation, object, or person" (Simonson and Maushak 1996, p. 986). For example, the behavioural component of computer anxiety depends on the previous experience of the person and on how often he uses computers.

In the above figure, components of attitudes are closely related one with each other. It seems that if our cognition about a subject or situation changes, our affect for this subject or situation will be revised accordingly. In general, the diagram in Figure 3.1 reveals a state of consistency between the three components.

3.4 COMPUTER ATTITUDES MEASUREMENT

As we have seen in Chapter 2 (see Section 2.3.3.7), teachers' attitudes towards computers can play an important role in the successful introduction and implementation of ICT in schools. Additionally, according to previous research it was found that the attitudes of head teachers towards ICT influence the uptake of ICT in schools (e.g. Cox et al., 1988). The purpose of this section is to present and discuss the characteristics of attitudes measures towards computers, in order to identify the most relevant to measure the attitudes of Greek teachers, head teachers, district officers and school counsellors towards computers (see the objectives of this study, Chapter 4, Section 4.2).

Over the last 20 years, several instruments have been developed in order to measure peoples' attitudes towards computers. This study reviewed those instruments which were used in education studies and whose validity and reliability were reported. These instruments are presented in Table 3.1 in chronological order. The characteristics of each of these instruments are presented in detail below.

One of the first instruments developed in the 1980s was the "Attitudes Towards Computers" (10 items). This instrument was developed by Reece and Cable (1982) and consisted of three main subscales of computer attitudes: cognitive, behavioural, and affective (see Section 3.3). Items on the cognitive subscale comprise of such statement as: "Computers can be used to save lives". On the behavioural subscale, items contain such statements as "I will use computers as soon as possible", "I would never take a job where I had to work with computers" and "If I had the money, I would buy a computer".

Table 3.1 - The characteristics of the attitudes towards computers instruments.

	Questionnaire's and authors' name	Attitudes categories or subscales	Examples	Number of items	Reliability	Type of scale	Sample
1980's	Attitudes Towards Computer (Reece and Cable, 1982)	Cognitive	Computers can be used to save lives.	10	.87	Five-point Likert (1=strongly disagree to 5=strongly agree)	Students
		Behavioural	I would never take a job where I had to work with computers.				
		Affective	I like learning on a computer.				
	The CAS, Computer Attitude Scale (Loyd and Gressard, 1984)	Anxiety	Computers usually make me feel nervous and uncomfortable.	30	.95	Five-point Likert (1=strongly disagree to 5=strongly agree)	Students
		Liking	I like working with computers.				
		Confidence	I'm sure I could do advanced work in computers.				
	The CAS, Computer Attitude Scale (Loyd and Loyd, 1985)	Usefulness	Learning about computers is waste of time.	10	.82		
	The Computer Attitude Scale (CAS) (Nickell and Pinto, 1986)	Positive attitudes towards computers	Computers will never replace human life. Life will be easier and faster with computers.	20	.81	Five-point Likert (1=strongly disagree to 5=strongly agree)	Undergra-duate students
		Negative attitudes towards computers	People are becoming slaves to computers. Computers are dehumanising to society.				
	Bath Country Computer Attitudes Scale (BCCAS) (Bear et al., 1987)	Computer experience and usage	People who like computers are often odd. Working math problems on a computer is fun, like solving a puzzle.	26	.94	Three-point Likert (I disagree, I don't know, I agree)	Students
		Educational and career plans	It is easy to get tired of using computer. People who use computers in their jobs are the only people who need to study about computers.				
		Choice of school subject	Learning about computers is interesting.				
	Attitudes Toward Computer Usage Scale (ATCUS) (Popovich et al., 1987)	Negative reactions to computers	I prefer not to learn how to use a computer.	20	.88	Seven-point Likert (1=strongly disagree to 7=strongly agree)	Undergra-duate students
		Positive reactions to computers	I would prefer to type a paper on a word processor than on a typewriter.				
		Computers and children/education	I feel that the use of computers in schools will negatively affect children's reading and writing abilities.				
		Reactions to (familiar) computer-related mechanisms	I like to play video games.				

Table 3.1 (continued)

	Questionnaire's and authors' name	Attitudes categories or subscales	Examples	Number of items	Reliability	Type of scale	Sample
	Computer Anxiety Rating Scale (CARS) (Heinssen et al., 1987)	Cognitive	I have difficulty in understanding the technical aspects of computers.	19	.87	Five-point Likert (1=strongly disagree to 5=strongly agree)	Undergraduate students
		Behavioural	I do not think I would be able to learn a computer programming language.				
		Affective	I feel apprehensive about using computers.				
	General Attitude Measure (Levin and Gordon, 1989)	Desire to become familiar with the computer	Every student should know how to work with computers. I think I'd be able to succeed with computers.	22	Varied between .44 -.77	Five-point Likert (1=strongly disagree to 5=strongly agree)	School students
		Range of capable users	Computers are for geniuses. The computer is most suitable for boys.				
		The need for computers in our lives	Learning by computers makes life more difficult. I don't understand what people see in computers.				
		The need for computer as instructional medium	Schools should use computers for instruction. One can learn more through computers than from teachers.				
1990's	The Computer Attitude Scale (Pelgrum and Plomp, 1991)	Educational Impact	Computers help to teach more effectively.	24	Varied between .65 - .90	Five-point Likert (1=strongly disagree to 5=strongly agree)	Teachers, head teachers
		Social Impact	Computers harm relations between people.				
		Training Needs	I try to keep informed about technological changes.				
		Self Confidence	I am afraid computers are too complicated for me to handle.				
	The Attitudes toward E-mail scale (D'Souza, 1992)	Attitudes toward classroom use of e-mail	The use of e-mail makes the course more interesting. The use of e-mail helps the student to learn more. The use of e-mail increases motivation for the course.	10	.81	Five-point Likert (1=strongly disagree to 5=strongly agree)	Undergraduate students

Table 3.1 (continued)

	Questionnaire's and authors' name	Attitudes categories or subscales	Examples	Number of items	Reliability	Type of scale	Sample
1990's	The Young Children's Computer Inventory (YCCI) (Miyashita and Knezek, 1992)	Attitudes toward computers	I know that computer give me opportunities to learn many new things. I enjoy lessons on the computer.	8	.75	Four choice (1=no, 2=maybe, 3=maybe yes, 4=yes)	School students
	The Attitude Toward Computer Scale (Francis, 1993)	Affective domain	I feel at ease when I am around computers. Computers make me feel uneasy and confused. Computers are boring.	24	.96	Five-point Likert (1=strongly disagree to 5=strongly agree)	Undergra-duate students
	The CAM, Computer Attitude Measure (Kay, 1993)	Cognitive	Computers would motivate students.	50	.95	Seven-point Likert, seven-point semantic differential	Pre-service teachers
		Affective	Computers are: Unlikely-Likable, Bad-Good, Unhappy-Happy.				
		Behavioural	If it were only up to you and no one else, how likely is it that you would perform each of the following behaviours in the next 6 to 8 months? (e.g. use a word processor).				
		Perceived control	If I had a problem using the computer, I could solve it one way or another.				
	The CASS, Computer Attitudes Scale for Students (Jones and Clarke, 1994)	Cognitive	Using computers prevents me from being creative.	40	.95	Five-point Likert (1=strongly disagree to 5=strongly agree)	Students
		Affective	I'm no good with computers.				
		Behavioural	I learn new computers tasks by trial and error.				
	The Computer Questionnaire (Knezek and Miyashita, 1994)	Computer importance,	I know that computers give me opportunities to learn many things.	16	Varied between .66 - .80	Four-point Likert (1=strongly disagree to 4=strongly agree)	School students
		Computer enjoyment/anxiety	I enjoy doing things on a computer. I am tired of using computers. I enjoy lessons on the computer.				
	Students' attitudes towards computers (Selwyn, 1997)	Affective	Using computers does not scare me at all.	21	.93	Five-point Likert (1=strongly disagree to 5=strongly agree)	Students
		Perceived usefulness	Computers help me organise my work better.				
		Perceived control	I am not in complete control when I use a computer.				
		Behavioural	I only use computer at college/school when told to.				

Table 3.1 (continued)

	Questionnaire's and authors' name	Attitudes categories or subscales	Examples	Number of items	Relia-bility	Type of scale	Sample
2000 -2003	The Teachers'Attitudes Toward Computers Questionnaire (TAC) (Christensen and Knezek, 2000)	This study used 14 previously-published instruments.	Computers would help me organize my work. I hesitate to use a computer for fear of making mistakes that I cannot correct. It is fun to figure out how computers work.	284	Varied between .89 - .95	Seven-point Likert, seven-point semantic differential	Teachers, pre-service teachers.
	Internet Attitude Scale (Tsai et al., 2001)	Perceived usefulness	The Internet makes society more advanced. The Internet enlarges my scope.	18	.81	Four-point Likert (1=strongly disagree to 4=strongly agree)	Students
		Affection	I hesitate to use the Internet in case I look stupid.				
		Perceived control	I need an experienced person nearby when I use the Internet.				
		Behaviour	I spend much time on using the Internet.				
	Attitudes towards the use of computers in schools (Pelgrum and Anderson, 2001)	The impact of ICT on achievement	Using computers in class leads to more productivity of students.	24	.85	Five-point Likert (1=strongly disagree to 5=strongly agree)	Head teachers
		The relevance of Internet	All teachers should have their own e-mail address.				
		The impact of ICT on school management	ICT is a valuable support in solving problems that our school is confronted with.				
		The contribution of ICT to life-long learning	ICT-based learning enables students to take more responsibility for their own learning.				
		The importance of in-service training courses on computers	In-service training courses on computers should be made compulsory.				
		The importance of all teachers acquiring ICT certification	All teachers should acquire ICT certification.				
	Computer and Web Attitude Scale (CWAS) (Liaw, 2002)	Computer Attitude Scale (CAS)	I feel confident using floppy disk to store my data files. I feel confident using word processors. I believe using computers is necessary in my school life. I like to have a computer at home.	16	.91	Five-point Likert (1=strongly disagree to 5=strongly agree)	Undergra-duate students
		Web Attitude Scale (WAS)	I feel confident using the Internet/WWW. I like to work with the Internet/WWW. I believe that the Internet/WWW has potential as a learning tool. Learning the Internet/WWW skills can enhance my academic performance.	16			

Statements on the affective subscale include, "Learning about computers is boring to me" and "I like learning on a computer". Reece and Cable (1982) used the "Attitudes Towards Computer" instrument with 61 seventh-grade and 172 eight-grade students from a high school. The alpha internal consistency reliability of the 10-item general attitude scale was found to be .87. In addition, the "Attitudes Towards Computers" instrument was tested along with three other different computer attitude instruments, and "was found to be reliable, factorially stable and valid" (Woodrow, 1991, p. 182). However, Woodrow (1991) claims that "while its items sampled attitudes towards computers belonging to the affective and behavioural domains, it did not contain one item belonging to the cognitive domain" (p. 182).

The Computer Attitude Scale (CAS, version 1) consisted of 30 Likert-scale type of questions for three subscales: computer anxiety, computer liking and computer confidence (Loyd and Gressard, 1984). The computer anxiety subscale refers to "anxiety or fear of computers". The computer liking subscale refers to "liking of computers or enjoying working with computers" and the computer confidence subscale refers to the "ability to use or learn about computers" (ibid, p. 502). Each subscale consists of ten items and presents positively and negatively worded items. Examples of items included in this instrument are: "Computers usually make me feel nervous and uncomfortable" (computer anxiety), "I like working with computers" (computer liking) and "I'm sure I could do advanced work in computers" (computer confidence). A higher score on the anxiety subscale corresponds to lower anxiety. In addition, a higher score on the computer confidence and liking subscales correspond to a more positive attitude towards working with and learning about computers.

Loyd and Gressard (1984) administered this instrument to 155 students (grades 8-12) using a six-point Likert scale and obtained high validity and reliability of the instrument. More specifically, the coefficient alpha reliabilities were .86, .91, .91, and .95 for the computer anxiety, computer liking, computer confidence subscales, and the total score, respectively. In addition, the correlation between the liking and anxiety subscales was .64, between liking and confidence subscales was .80 and between anxiety and confidence subscales was .73. Therefore, according to Loyd and Gressard (1984), the instrument is an effective and reliable measure of attitudes toward learning about and

using computers. More specifically, they maintain that "the reliability coefficients of the three sub-scales and the findings of the factor analysis suggest that the scores of the three sub-scales are sufficiently stable to be used as separate scores. Because the magnitudes of intercorrelations among the sub-scales and the large loadings on the initial factor in the factor analysis indicate that the three subscales share a large amount of common variance, the total score based on the three subscales could reasonably be interpreted to represent a general attitude toward working with computers that reflects liking, confidence and freedom from anxiety" (ibid, p. 504). Later, another subscale, called computer usefulness (10 items), with alpha reliability of 0.82 was added to the Computer Attitude Scale (version 2). This subscale refers to the degree of perceived usefulness of using computers. An example of a statement used to measure the perceived usefulness subscale is "Learning about computer is a waste of time" (Loyd and Loyd, 1985).

The CAS has been validated for use with a number of populations and in different countries. For instance, the CAS has been used in studies among school students (see Gressard and Loyd, 1987), undergraduate students (see Al-Khaldi and Al-Jabri, 1998), pre-service teachers (see Woodrow, 1991) and in-service teachers (Loyd and Gressard, 1986; Kluever et al., 1994). In addition, the CAS was translated by Berrberoglu and Calikoglu (1993) into Turkish and by Francis et al., (2000) into the Hebrew language.

In general, these studies found very good indicators of reliability and validity. However, Woodrow (1991) in his analysis of the CAS (version 1), found that this instrument "is two dimensional, not three as claimed... The Computer Attitude Scale was found to sample attitudes from both the affective and behavioural domains but none from the cognitive domain" (p. 181). In addition, Al-Khadi and Al-Jabri (1998) in their study conclude: "The CAS (version 2) needs to be tested in further research to make sure it measures the three components of attitude. Moreover, we need to know which of the four subscales of CAS represents each of the affective, cognitive, and behaviour domains. Without knowing that, we cannot claim that CAS has a strong theoretical base... The validity of the CAS needs to be further assessed to conclude that these four measures are in fact independent, and are all needed to measure attitude" (p. 36).

The Computer Attitude Scale, or CAS (Nickell and Pinto, 1986) contained 20 five-point Likert items and was created to measure general attitudes towards computers in society.

Eight items expressed positive attitudes towards computers and 12 items expressed negative attitudes (example items are presented in Table 3.1). In order to evaluate the psychometric properties of this instrument the researchers used five different samples (206 college students, 152 students from a small liberal arts college, 47 computer operators from a large organisation, 49 and 47 students, respectively, each from a medium-sized state university). Data collected indicated the reliability (alpha=.81) and validity of the instrument were adequate. However, Nickell and Pinto (1986) support that "further study is needed to determine the instrument's reliability and validity in the general population" (p. 305).

Another computer attitude scale, the Bath Country Computer Attitudes Scale (BCCAS), was developed by Bear et al., (1987). The initial scale consisted of 37 three-point Likert items (I agree, I do not know, I disagree) and was developed and piloted with 398 students in grades 4 through 12 in Western Virginia. The final version of BCCAS consisted of 26 items and was administered to 551 students. The internal consistency was found to be .94. According to Bear et al., (1987), the Bath Country Computer Attitudes Scale (BCCAS) "scores were found to be predictably related to computer experience and usage, educational and career plans, choice of favourite school subject, and attitudes toward school subjects." Sample items of this instrument are presented in Table 3.1.

The Computer Anxiety Rating Scale (CARS) was developed by Heinssen et al., (1987) in order to examine the behavioural, cognitive, and affective components of computer anxiety. More specifically the CARS is a 19-item scale and consists of two categories of items. The first category (10 items) reflects anxiety-laden statements about computers (e.g., "I feel apprehensive about working at a computer terminal") and the second category (nine items) reflects non-anxiety statements (e.g., "I am confident that I can learn computer skills"). The instrument was administered to 270 introductory psychology students. Participants responded to items on 5-point scales (1=strongly disagree to 5=strongly agree). The CARS demonstrated high internal consistency (Cronbach alpha=.87.) and was reliable and stable over a test-retest interval of four weeks. Although Heinssen et al., (1987) provided some validation results for the CARS, they suggested that cross validation and factor analysis with a variety of subject populations is required before the instrument can be fully utilised. Chu and Spires (1991) tested the

validity of the CARS using factor analysis. They used this instrument with 132 first-year MBA students and they found out that the CARS in general is a valid instrument. Four items, however, "systematically behave differently from expectations and therefore may not properly measure computer anxiety" (ibid. p. 7).

The "Attitudes Toward Computer Usage Scale" (ATCUS) was developed by Popovich, et al., (1987) "to assess how people react to using computers and computer-related mechanisms" (p. 263). The ATCUS was developed in two studies. "The first study involved item development and included estimates of internal consistency and test-retest reliability for a 40 item scale" (ibid, p. 262). Subjects in the first study were 365 undergraduate students. The resulting internal consistency for the entire ATCUS was reported as .88. The test-retest correlation was reported as .84. In addition, significant correlations were found between the ATCUS and the other two measures of computer attitudes used to test convergent construct validity (r=.62, p<.001 and r=.52, p<.001).

The second study used a revised version of the ATCUS (20-item) and was administered to 351 undergraduate students. The 20-item scale as described by Popovich et al., (1987), was found to have an internal reliability coefficient of .84 and test-retest correlation .91. A seven-point Likert type scale were used in both studies (from 1=strongly agree to 7=strongly disagree). The revised version of ATCUS consisted of four subscales, which are different than others subscales that are discussed in this chapter. These were "Negative reactions to computers" (seven items), "Positive reactions to computers" (five items), "Computers and children/education" (seven items), and "Reactions to (familiar) computer-related mechanisms" (three items) (ibid, p. 266). Items included in this instrument are presented in Table 3.1. Popovich et al., (1987) concluded that the results of their study showed that the ATCUS is a reliable instrument. "Although the items contained in each of the factors appear to be logically related, there are several discrepancies. Two of the items which described computer-related mechanisms (item 20 and item 7)[1] did not load on the appropriate factor, but instead on factors which consisted primarily of reactions to computers... Future use of the scale should take these discrepancies into account" (p. 268).

[1] The item 20 was "I do not like to program computerised items such as VCR's and microwave" and the item 7 was "I prefer not to learn how to use a computer".

In a study involving 222 Israeli students in grades 8 through 10, Levin and Gordon (1989) tried to identify the effect of gender and computer experience on attitudes toward computers. The attitude instrument used in this study was called "General Attitude Measure". The subscales of this instrument were: 1) "desire to become familiar with the computer" (six items), 2) "range of capable users" (four items), 3) "the need for computers in our lives" (four items), and 4) "the computer as an instructional medium" (five items). Levin and Gordon (1989) found that the internal consistency reliability in general was very low for the total sample, with Cronbach's alpha ranging form .44 (for the range of capable users subscale) to .77 (for the computer as an instructional medium subscale).

Pelgrum and Plomp (1991) developed the "Attitudes Towards Computers" instrument in order to measure teachers' and head teachers' attitudes towards computers in 22 countries. The attitude instrument used a 5-point Likert type scale and included various subscales. These were: a) perceived educational impact (nine items), b) perceived social impact (six items), c) training needs (five items) and d) self confidence (four items). Examples of items included in this instrument are presented in Table 3.1. This instrument was piloted in England, in the Federal Republic of Germany, in Greece and in the Netherlands. The subscales Educational Impact and Self Confidence had reliabilities across 22 countries of about .90, the Social Impact between .80 and .90. However, the reliabilities were relatively low for the subscale Training Need (alpha=.65-.80), although the authors comment that the lowest reliability of Training Need was "still quite high for a five item scale" (p. 79).

Although this review shows that researchers over the decade of the 80's and 90's have developed various instruments measuring people's computer attitudes, few of them have designed instruments for attitudes towards e-mail. One of them, "The Attitudes towards E-mail", developed by D'Souza (1992) to measure the attitudes of 24 undergraduate students towards e-mail. The instrument consists of ten items and presents positively worded statements such as "The use of E-mail increases motivation for the course" or "The use of E-mail helps the student to learn more". The response alternatives for each item were strongly disagree (1), disagree (2), undecided (3), agree (4) and strongly agree (5). In the pilot study, the ten items had a reliability (Cronbach's alpha) of .81. However,

the use of only 24 subjects to assess attitudes may not be considered adequate to accurately assess the alpha reliability.

Other attitude instruments at the beginning of the 90's were developed by Francis (1994), and Jones and Clarke (1994) in order to measure undergraduate and secondary students' attitudes towards computers, respectively. These instruments used a number of statements similar to those used by other authors and have been adequately tested for their validity and reliability. For example, the affective item "I'm no good with computers" in Jones and Clarke (1994) attitude scale (Computer Attitudes Scale for Secondary Students"-CASS) was derived from the CAS attitude scale which was used to measure the computer confidence (see Loyd and Gressard, 1984, 1986).

More specifically, Jones' and Clarke's instrument (CASS) "was formulated within the framework of the tripartite model of attitudes" (ibid, p. 315) (see Section 3.3) and was developed to measure computer attitudes of students in secondary schools. It consisted of 40 items (affective component=15 items, cognitive component=15 items, behavioural component=10 items) and a five-point Likert scale was used for the responses in each item. Jones and Clark (1994) administered this instrument to 231 Year 10 students and found that this had very good internal consistency reliability (Cronbach's alpha: total=.95, affective=.95, cognitive=.88, behavioural=.71). Additionally, Jones and Clark (1994) reported that the three components and the whole scale were significantly correlated with each other. The instrument was administered again two weeks later to 163 students from Years 9 and 10 in order to retest its reliability. The results of the Pearson correlation (.84, $p<0.001$) indicated that the "CASS has adequate test-retest reliability" (p. 316).

More recently, Valois et al., (2000) collected data from two samples of high school students (sample 1=421, sample 2=422) to examine the reliability of the CASS. They found that the reliability ranged from .88 to .96 that was quite similar to that found by Jones and Clarke (1994). However, when Valois et al., (2000) used "confirmatory factor analyses to test the three factor-solution (affect, cognition, and behaviour) of the CASS" certain problems for some items were revealed. These items were the following: "Boys like computers more than girls do", "People who use computers are seen as being more important than those who don't", "Not many people can use computers" and "People

who work with computers make really good money". For example, when the authors used "non parametric item analyses" for the item "Boys like computers more than girls do" found out that "option 1 (strongly agree for boys, strongly disagree for girls) is frequently endorsed even among students presenting a very favourable attitude towards computers" (p. 289). In addition, according to Valois et al., (2000), "the probability of endorsing option 3 [slightly agree] rather than option 4 [strongly agree] is higher at high levels of the total score, suggesting that this item does not discriminate effectively at all ranges of the attitude. It would probably be a more adequate item in a social role scale than in an attitude scale towards computers" (p. 289).

Besides, Kay's (1993) instrument (The CAM, Computer Attitude Measure), apart from previous attitudes subscales (e.g. cognitive, affective, behavioural), added the perceived behavioural control subscale, which is based on Ajzen's Theory of Planned Behaviour (see Section 3.5.3). This instrument used a combination of measure scales. For instance, the perceived behavioural control component of attitudes was assessed using seven-point Likert items while the affective component of attitudes was assessed using ten 7-point semantic differential scale items (see Table 3.1). In addition, Kay (1993) used this instrument to a very large sample (647 preservice teachers) compared to the sample size of other studies mentioned earlier. Kay (1993) reported alpha reliability coefficients of .86, .88, .95, .89, and .95 for cognitive, affective, behavioural, perceived control and total scale respectively.

Franci's (1993) study "has identified a set of 24 items which cohere to produce a unidimensional scale of attitudes towards computers for use among undergraduate students which operationalizes the affective attitudinal domain independently of the behavioural intentions or the cognitive dimensions" (p. 253). This instrument was based on the attitude measurement of the Theory of Reasoned Action (Fishbein and Ajzen, 1980, see Section 3.5.1). As we can see in Table 3.1, the internal consistency of this instrument was very high (alpha=.96).

Another instrument that developed in this decade to measure students' attitudes (aged 16-19 years) is the "Students' Attitudes towards Computers" (Selwyn, 1997). This instrument is a 21-item questionnaire (11 positive and 10 negative items) and was formulated within both the framework for assessing attitudes towards computers set out

by Kay (1993), Davis' Technology Acceptance Model (see Section 3.5.2) and Ajzen's Theory of Planned Behaviour (see Section 3.5.3). The scale was Likert-type, and assessment of the items was made according to the five-point system (strongly disagree to strongly agree). More specifically, this scale apart from the affective (six items) and behavioural (four items) components consisted of two other components of computer attitudes: the perceived usefulness (five items) (see Technology Acceptance Model, Section 3.5.2) and the perceived behavioural control (six items) (see Theory of Planned Behaviour, Section 3.5.3). Examples of items included in these four components are presented in Table 3.1. The full scale was found to have both a high internal reliability (Cronbach alpha=.93) and test-retest reliability.

The Teachers' Attitudes Toward Computers Questionnaire (TAC) (Christensen and Knezek, 2000) is "a 10-part composite instrument including 284 items spanning 32 Likert and Semantic Differential subscales" (p. 328). More specifically, TAC was developed in order to investigate whether previous validated instruments of attitudes towards computers were still reliable. The instruments which were used in TAC were some of those that discussed in this section (see Reece and Gable 1982; Gressard and Loyd, 1986; Heinssen et al., 1987; D'Souza, 1992; Francis, 1993; Kay, 1993; Jones and Clarke, 1994). In addition the following computer attitude questionnaires contributed to the TAC:

1. The Computer Use Questionnaire (Griswold, 1983).
2. The Computer Survey Scale (Stevens, 1982).
3. The ATC (Attitudes Toward Computers) (Raub, 1981).
4. The CAIN (Computer Anxiety Index) (Maurer and Simonson, 1984).
5. The BELCAT (Blombert-Erickson-Lowery Computer Attitude Task) (Erickson, 1987).
6. The Computer Attitude Questionnaire (CAQ) (Knezek and Miyashita, 1994).
7. The Computer Attitude Items (Pelgrum et al., 1993).

The Teachers' Attitudes Toward Computers Questionnaire (TAC) was administered to 621 educators (teachers and pre-service teachers) in Texas, Florida, New York and California during 1995-1996. The internal consistency reliability analysis indicated that most of the subscales were still reliable. According to Christensen and Knezek (2000),

especially worthly were those subscales that indicated "high reliability without excessive length" (p. 329). These subscales are shown in Table 3.2.

Table 3.2 - Top nine of 32 attitudinal scales (Christensen and Knezek, 2000).

Scale's name	Number of items	Alpha
The Computer Anxiety subscale. BELCAT (Blombert-Erikson-Lowery Computer Attitude Task) (Erickson, 1987).	20	.95
E-mail for Classroom Learning (D'Souza, 1992).	11	.94
The Semantic Differential subscale the Computer Attitude Measure (Kay, 1993).	10	.93
Subscale 'A' from the Computer Attitudes Scale for Secondary Students (CASS) (Jones and Clarke, 1994).	15	.93
The Attitudes Toward Computers subscale (ATC) (Raub, 1981).	16	.91
The Computer Enjoyment subscale (Pelgrum et al., 1993).	9	.90
Teacher subscale of the Computer Attitude Measure (Kay, 1993).	5	.89
The Anxiety subscale of the Computer Attitude Questionnaire (Knezek and Miyashita, 1994).	8	.89
The Anxiety subscale of the Computer Attitude Scale (Loyd and Gressard, 1984).	9	.89

More recently, Pelgrum and Anderson (2001) developed four subscales and two single-item scales to measure the attitudes of head teachers in 25 countries towards the use of ICT in schools. These attitudes subscales differed from previous ones in the following ways: 1) the impact of ICT on achievement (five items), 2) the relevance of the Internet (six items), 3) the impact of ICT on school management (five items), 4) the contribution of ICT to life-long learning (six items), 5) the importance of in-service training courses on computers (one item) and 6) the importance of all teachers acquiring ICT certification (one item). According to Pelgrum and Anderson (2001), "the internal consistency coefficient Cronbach's alpha showed that the psychometric quality of the four sub-scales as well as of the complete scale was satisfactory. The reliability coefficients of the four sub-scales varied between .73 and .84. Cronbach's alpha coefficient for the whole scale was higher than .85 for each country" (p. 180).

In the last 15 years a number of studies were conducted in order to investigate people's attitudes towards the Internet. One of these instruments is "The Internet Attitude Scale". This instrument was developed by Tsai et al., (2001) revising items from a previous scale proposed by Selwyn (1997). The instrument consisted of four subscales of Internet

attitudes. The first subscale, "The perceived usefulness" is composed of five items and measures students' perceptions about the positive impacts of the Internet on individuals and society. Examples of items included in this subscale are presented in Table 3.1. The second subscale, "Affection", is composed of six items that assess students' feeling and anxiety when using the Internet (see Table 3.1). The third subscale, "Perceived Control", is composed of five items that measure students' confidence about the independent control of the usage of the Internet (see Table 3.1). The fourth subscale, "Behaviour", is composed of three items that assess students' actual practice and frequency of using the Internet (see Table 3.1). Thai et al., (2001), used this instrument with 753 Taiwan high schools students and they found that the internal reliability index, alpha coefficients, were adequate for the first three subscales, 0.82, 0.71, and 0.68, and for the whole scale, 0.81. However, the alpha coefficient was low for the "Internet use behaviour" scale. According to Tsai et al., (2001) this may have happened because of the relatively small number of items (three items) in the scale.

Another instrument that developed more recently to measure students' attitudes towards computers and Internet is the Computer and Web Attitude Scale (CWAS) (Liaw, 2002). This instrument consisted of 32 five-choice Likert items designed to assess individual affective, cognitive, and behavioural attitudes toward computer and Web technologies. Examples of items included in these components are presented in Table 3.1. The instrument was formulated within the frames for assessing attitudes towards computers set out by other studies (i.e. Kay, 1989; Loyd and Loyd, 1985). The instrument was completed by 263 undergraduate students and was shown to be reliable with Cronbach alpha .91.

The conclusions from the above studies are numerous. First of all, a wide variety of instruments have been developed using different subscales, such as cognitive, affective, behavioural, anxiety, confidence, perceived control and the relevance of the Internet. Most of these subscales were formulated within the framework of the tripartite model of attitudes (see Section 3.3) or the Theory of Planned Behaviour (see Section 3.5.3). However, there are studies that did not mention the theoretical framework of attitudes' design (e.g. Levin and Gordon, 1989).

Secondly, the reliability and validity of the above instruments were calculated using different ways of analysis. For example some studies reported only the alpha reliability consistency; other studies reported alpha reliability and test-retest reliability or factor analysis. Moreover, these instruments which were administered to specific population and age groups were mostly designed for students in schools and universities and only a few focused on teachers' and head teachers' attitudes towards computers (see Pelgrum and Plomp, 1991; Pelgrum and Anderson, 2001). In addition, these studies used different sample sizes ranging from 22 subjects (see D'Souza, 1992) to 647 subjects (see Kay, 1993). A small sample size is sometimes considered not adequate to assess the reliability of the instrument. On the other hand, many of the studies mentioned in this section did not report the criteria of sample selection.

Furthermore, the length of these instruments is diverse. For example, "The Attitudes Towards Computer" (Reece and Cable, 1982) instrument consisted of 10 items and "The Teachers' Attitudes Toward Computers Questionnaire" (Christensen and Knezek, 2000) consisted of 284 attitudes items. According to Shaft et al., (2004), an instrument with a large number of items may lead to participants' fatigue and to response bias. However, they support that "longer instruments tend to possess higher levels of internal consistency" (p. 10).

3.5 ATTITUDES AND BEHAVIOUR

Several psychological theories and models have aimed at explaining the relationship between attitudes and behaviour. Examples of such attitude models and theories are the Theory of Reasoned Action (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980), the Model of Attitude Behaviour Relations (Triandis, 1980), the Health Belief Model (Janz and Becker, 1984), the Theory of Action (Huguenin, 1988), the Technology Acceptance Model (Davis, 1989) and the Theory of Planned Behaviour (Ajzen, 1985; 1988; 1991; 2002). The most commonly used models and theories in both educational and ICT research are the Technology Acceptance Model, the Theory of Reasoned Action and the Theory of Planned Behaviour, which are discussed below.

3.5.1 The Theory of Reasoned Action (TRA)

The Theory of Reasoned Action has been used as a model for the prediction of behavioural intention and behaviour (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980).

According to the Theory of Reasoned Action, shown in Figure 3.2, the behaviour (B) is determined by the intention (I) which is engaged in the behaviour. Intention is "a special case of beliefs, in which the object is always the person himself and the attribute is always a behaviour"; "the strength of an intention is indicated by the person's subjective probability that he will perform the behaviour in question" (Fishbein and Ajzen, 1975, p. 12).

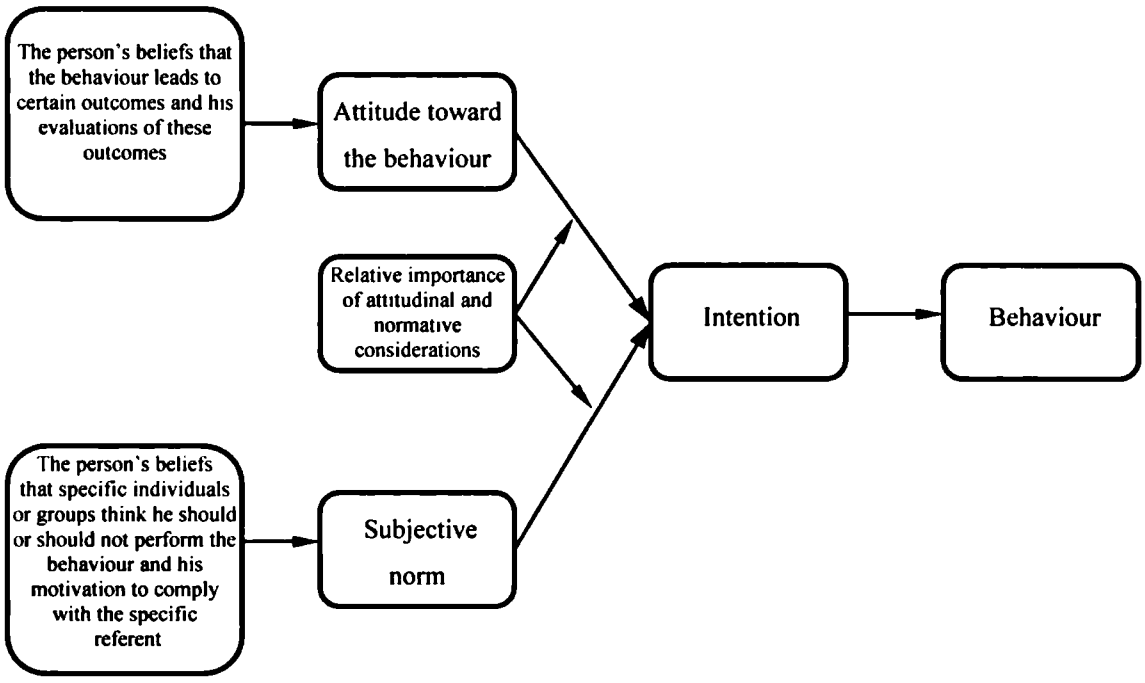

Figure 3.2 - The Theory of Reasoned Action (Ajzen and Fishbein, 1980, p. 6).

Intention, in turn, is determined by attitude towards the behaviour (A_B) and the subjective norm (SN). Attitude towards the behaviour is defined as "the individual's positive or negative evaluation of performing the behaviour" (Ajzen and Fishbein, 1980, p. 6). The second determinant of intention, the subjective norm, is defined as "the person's perception of the social pressures put on him to perform or not perform the behaviour in question" (ibid, p. 6).

Ajzen and Fishbein (1980), point out that attitude is determined by behavioural beliefs and subjective norm is determined by the normative beliefs. According to behavioural beliefs "a person who believes that performing a given behaviour will lead to mostly positive outcomes will hold a favourable attitude toward performing the behaviour, while a person who believes that performing the behaviour will lead to mostly negative outcomes will hold an unfavourable attitude" (ibid, p. 7). According to normative beliefs "a person who believes that most referents with whom he is motivated to comply think he should perform the behaviour will perceive social pressure to do so" (ibid, p. 7). In addition, according to Ajzen's and Fishbein's theory there are additional variables external to the theory which can influence behaviour indirectly. These variables are the demographic characteristics (i.e. gender, age), personality traits (i.e. authoritarianism, need for achievement), and traditional measures of attitudes towards persons, institutions and policies. These variables are termed external variables. According to the theory, a given variable will influence intentions if it meets one or more of the following conditions:

1. "It influences the attitudinal components",
2. "it influences the normative component", or
3. "it influences the relative weights of the two components" (Ajzen and Fishbein, 1975, p. 307).

The Theory of Reasoned Action can be represented by the following three equations (Fishbein and Ajzen, 1975). In Equation 3.1, B is the behaviour; I is the intention to perform the behaviour B. A_B is the attitude toward performing behaviour B. SN is the subjective norm and w_1 and w_2 "are empirically determined weights" (ibid, p. 301).

$$B \sim I = (A_B)w_1 + (SN)w_2 \qquad \ldots\ldots\ldots\ldots 3.1$$

In Equation 3.2, A_B is the attitude towards performing behaviour B. b is "the belief that performing behaviour B leads to consequence or outcome i; e is the person's evaluation of outcome i; and n is the number of beliefs the person holds about performing behaviour B" (ibid, p. 301).

$$A_B = \sum_{i=1}^{n} b_i e_i \qquad 3.2$$

In Equation 3.3, *SN* is the Subjective Norm. "b_i is the normative belief (ie., the person's belief that reference group or individual i thinks he should or should not perform behaviour B); m_i is the motivation to comply with referent i; and n is the number of relevant referents" (ibid, p. 302).

$$SN = \sum_{i=1}^{n} b_i m_i \qquad 3.3$$

In brief, according to the Theory of Reasoned Action, behaviour is determined by the intention to engage in the behaviour. Intention is determined by attitude toward the behaviour and subjective norm. Attitude is determined by behavioural beliefs and evaluation of the salient outcomes. Subjective norm is determined by normative beliefs and motivation to comply with the specific referents[1].

The Theory of Reasoned Action has been tested in many studies made to understand and predict human behaviour such as smoking (Ajzen et al., 1982), dental hygiene behaviours (McCaul et al., 1988; Toncatto and Binik 1987), wearing seat belts (Budd et al., 1984) and attendance at an employee training session (Fishbein and Stasson, 1990).

The predictive validity of the Theory of Reasoned Action has specific limitations. In a meta-analysis of research on the theory, Sheppard et al., (1988) found that the theory does not allow accurate prediction of intention and thus behaviour for situations in which persons have incomplete control. In other words, the theory works most successfully when applied to behaviours that are under a person's volitional control (for example, the person can decide at will whether to perform the behaviour) (Ajzen, 1988). To deal with these limitations, Ajzen (1985; 1988) developed the Theory of Planned Behaviour. In that theory, Ajzen added a third component which he labelled perceived behavioural control. According to Ajzen (1988), if the behaviour of the person is not under complete volitional control, the person needs to have resources and opportunities in order to

[1] The majority of Theory of Reasoned Action and Theory of Planned Behaviour (see Section 3.2.3) studies used three different steps of statistical analysis. The first step of analysis is to compute basic descriptive statistics (mean, standard deviation) for each component of the theories. The second step of the analysis is the calculation of Pearson correlations. These correlations are performed in order to examine the relation of behaviour and intention with the other variables of the TRA (attitude, subjective norm) and TPB (attitude, subjective norm and perceived behavioural control). The third step of the analysis is usually the regression analysis. This analysis is used in order to estimate the effects of independent variables of the theories (attitude, subjective norm and perceived behavioural control) on the dependent variables (intention and behaviour) (see also Chapter 4, Section 4.7.6).

perform the behaviour in question. People, who believe that they have the resources and opportunities, will perform the behaviour. The Theory of Planned Behaviour is described in more detail in the Section 3.5.3.

Another model that suggests that attitudes directly influence intention and behaviour is the Technology Acceptance Model. This is presented and discussed in the next section.

3.5.2 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis et al., (1989) to explain computer-usage behaviour. The theoretical basis of the model was Fishbein and Ajzen's Theory of Reasoned Action (see Section 3.5.1). The goal of TAM was "to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of the end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified" (Davis et al., 1989, p. 985).

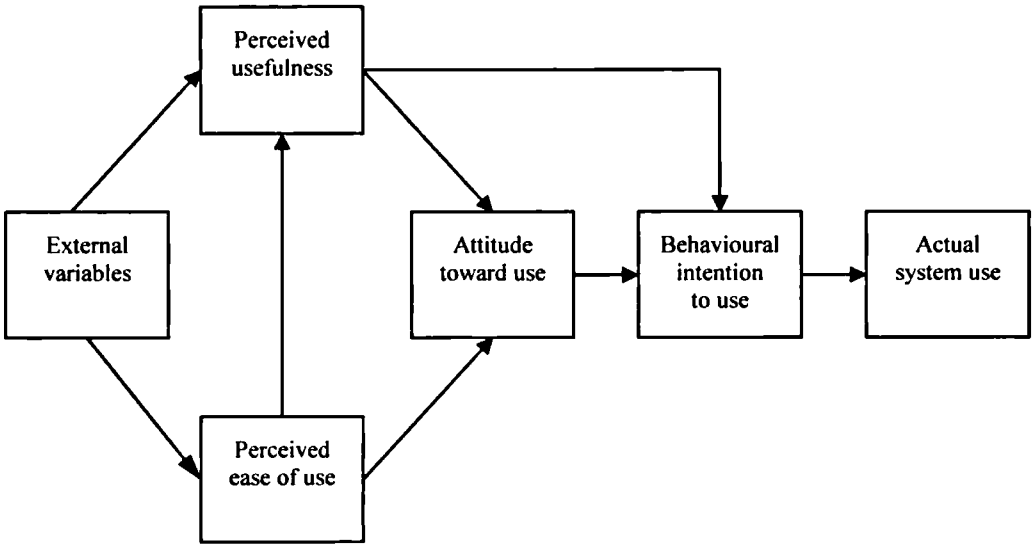

Figure 3.3 - The Technology Acceptance Model (Davis et al., 1989, p. 985).

According to TAM, shown in Figure 3.3, an individual's technology acceptance decision is determined by his or her behavioural intention which is underpinned by his or her

attitude towards the use of technology[1]. Attitude towards use is determined by beliefs towards a technology's usefulness and ease of use, as perceived by an individual.

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived ease of use is defined as the "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989, p. 320). Furthermore, TAM theorises that external factors, such as the task, user characteristics, and organizational contexts are expected to influence technology acceptance behaviour indirectly by affecting attitudes or intention.

The Technology Acceptance Model has been successfully applied in numerous settings of Information Technology and has been shown to be a very good predictor of ICT use (see Davis, 1989; 1993; Davis et al., 1989; Subramanian, 1994; Keil et al., 1995; Mathieson, 1991; Jackson et al., 1997; Agarwal and Prasad, 1999; Igbaria et al., 1997; Hu Chau et al., 1999). While being powerful in helping predict user acceptance, one of the limitation of TAM is it does not include social factors which may have important influences on attitude, intention and behaviour (for a recent review, see Legris et al., 2003). TAM does not include a subjective norm component (see Section 3.5.1) as a determinant of intention because of its uncertain theoretical and empirical psychometric status (Davis et al., 1989). In the literature review there are many studies that expanded the TAM and some researchers suggested that it should be modified to include other components in order to explain users' intention and behaviour better (see for example Lucas and Spitler, 1999; Venkatesh, 2000; Agarwal and Prasad, 1997). More recently, Venkatesh and Davis extended TAM (2000) to include variables relevant to social influence and cognitive instrumental processes. This extended model is called TAM2, it includes subjective norms and was tested with longitudinal research studies.

The above show that TAM has been widely used to explain individual acceptance and usage of technology but not a wide range of behaviours that are related to the uptake of ICT in schools. In addition further research is needed in order to examine the influence of other factors (i.e. subjective norm) on intention and behaviour. Therefore, in this

[1] The Technology Acceptance Model included both Attitude toward Behaviour and Behavioural Intention as in the Theory of Reasoned Action.

study, the TAM was not considered as the most appropriate model for investigating the factors that influence teachers' intention to use ICT in their teaching and head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools.

3.5.3 The Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (Ajzen, 1985; 1988; 1991), shown in Figure 3.4. is an extension of the Theory of Reasoned Action (Fishbein and Ajzen, 1975; Ajzen and Fishbein 1980). The major difference between the Theory of Reasoned Action and the Theory of Planned Behaviour is the addition of a third determinant factor of behavioural intention. This factor is called perceived behavioural control. As was mentioned in the previous section (see Section 3.5.1), the rationale behind the addition of perceived behavioural control (PBC) was that it would allow prediction of behaviours that were not under complete volitional control. The other two factors, the attitude towards the behaviour and the subjective norm, are similar to the factors of the Theory of Reasoned Action (see Section 3.5.1).

The perceived behavioural control is defined as one's perception of how easy or difficult it is to perform the behaviour. It has been viewed as a construct conceptually related to Bandura's concept of perceived self-efficacy. Self-efficacy is defined as the beliefs in one's ability to perform a certain course of behaviour (see Bandura, 1977; 1986). Perceived behavioural control is determined by control beliefs which are "beliefs about the presence factors that may facilitate or impede performance of the behaviour and the perceived power of these factors" (Ajzen, 2002, p. 1). The perceived behavioural control and control beliefs are described by the following equation (3.4) (Ajzen, 1991, p. 197):

$$PBC \} \Sigma p_i c_i \qquad 3.4$$

In this equation (3.4), PBC is the perceived behavioural control; ci is the control belief; pi is the perceived power of control factor. Each control belief (c) "is multiplied by the perceived power (p) of the particular control factor to facilitate or inhibit performance of the behaviour, and the resulting products are summed across the n salient control beliefs to produce the perception of behavioural control (PBC)" (Ajzen, 1991, p. 196-197).

Ajzen (1991), maintains that these control beliefs may be based on several factors, namely past experience with the behaviour, second-hand information about the behaviour, relatives and friends' experience, and factors promoting or demoting the perceived difficulty of carrying out the behaviour in question.

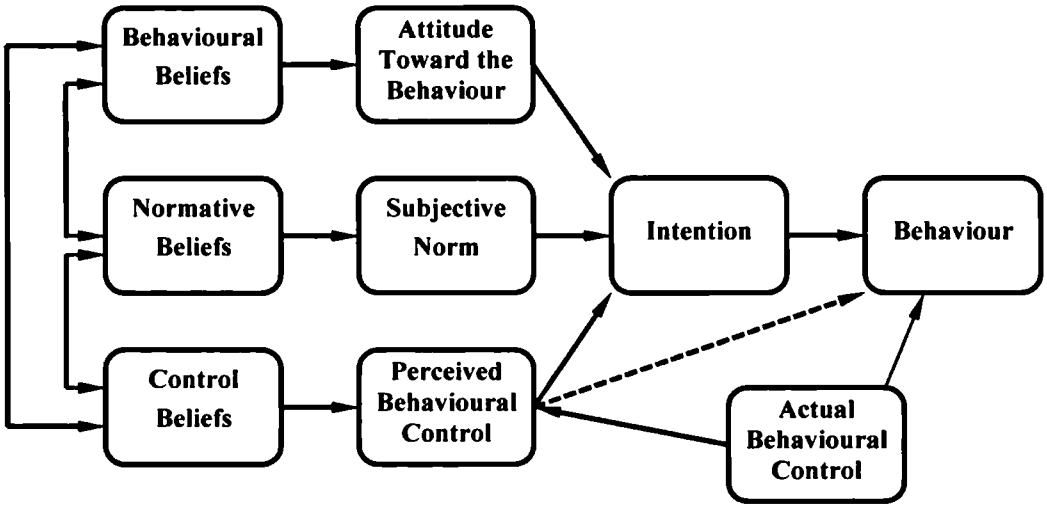

Figure 3.4 – The Theory of Planned Behaviour (Ajzen 2002, p. 1).

According to Ajzen (2002), "in combination, attitude towards the behaviour, subjective norm, and perception of behavioural control leads to the formation of a behavioural intention. ...Finally, given a sufficient degree of actual control over the behaviour, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behaviour" (ibid, p. 1).

Figure 3.4 shows that perceived behavioural control could influence behaviour in two ways. On the one hand, it can influence behaviour indirectly, via intentions. According to Ajzen (1988), even if people have positive attitudes to certain behaviour and know that others would endorse their carrying out the behaviour, they will not embark on engaging in the behaviour unless they believe that they have the necessary resources and opportunities to carry out that behaviour. On the other hand, the perceived behavioural control may have a direct impact on the behaviour (Ajzen, 1988). Concerning the second way, Ajzen argues that "the performance of a behaviour depends not only on motivation to do so but also on adequate control over the behaviour in question. It follows that perceived behavioural control can help predict goal attainment independent of

behavioural intention to the extent that it reflects actual control with some degree of accuracy" (ibid, p. 134).

Ajzen (1991) reviewed twelve studies, which tried to predict behaviour by combining intentions and perceived behavioural control. These studies predicted a wide range of behaviours including job search, playing video games, problem drinking, leisure activities, performing cognitive tasks, election participation, losing weight, attending class, shoplifting and giving a gift. Ajzen's review found an average multiple correlation of attitude, subjective norm and PBC, with intention of R=.71 (19 correlations), and an average multiple correlation of R=.51 (17 correlations) for prediction of behaviour from intention and PBC.

The validity of the Theory of Planned Behaviour was also supported in recent meta-analyses. For example, Godin and Kok (1996) found that PCB contributed a mean additional 13% of variance to the prediction of intentions and 12% to the prediction of behaviour. Sheeran's (2002) meta-analysis found that intentions accounted for 28% of the variance in behaviour, on average, across 422 longitudinal studies. Armitage and Coner's (2001) meta-analysis provided support for the efficacy of the Theory of Planned Behaviour as a predictor of intentions and behaviour. From a database of 185 independent studies published up to the end of 1997, they found that the Theory of Planned Behaviour accounted for 27% and 39% of the variance in behaviour and intention.

The Theory of Planned Behaviour has been found more valid in predicting behaviour in some studies, compared to the Theory of Reasoned Action. For instance, Madden, Ellen, and Ajzen (1992) compared the Theory of Reasoned Action and the Theory of Planned Behaviour in order to test the following two hypotheses: "The first posited that the inclusion of perceived behavioural control would significantly enhance the prediction of intentions and target behaviour. The second proposed that the enhancement in the prediction of target behaviour would be related to the magnitude of perceived behavioural control" (ibid, pp. 8-9). The first hypothesis as well as the second hypothesis was clearly supported by the data. According to Madden et al., (1992) the Theory of Reasoned Action is applicable when the behaviour in question is under volitional control. In contrast, "when the behaviours violate the assumption of volitional control,

the theory of planned behaviour was shown to be superior to the theory of reasoned action for the prediction of target behaviour" (ibid, p. 9).

Furthermore, the Theory of Planned Behaviour was also found more valid in predicting behaviour in comparison with the Theory of Reasoned Action in a study conducted by Chang (1998). In his comparison study of the Theory of Reasoned Action and the Theory of Planned Behaviour, he collected data from 181 university students in Hong Kong in order to asses the influence of attitude toward the behaviour, subjective norm, and perceived behavioural control on the intention to make unauthorized software copies. The results showed that the Theory of Planned Behaviour can be used successfully to predict the intention to perform unethical behaviour and that it is better than the Theory of Reasoned Action.

In the literature, there are over 550 studies which have used the Theory of Planned Behaviour (see www-unix.oit.umass.edu/~aizen/). Some of the most recent studies, on various non-educational topics, which used the TPB are shown in Table 3.3; whereas Section 3.5.5 presents empirical education evidence from studies.

Table 3.3 – Some of the most recent studies that used the TPB.

Behaviour	Studies
Condom use	- Bogart et al., 2000; - Conner and Flesch, 2001; - Rosengard, et al., 2001.
Safe sex behaviours	- Bryan et al., 2002; - Drake and McCabe, 2000; Wong and Tang, 2001.
Smoking	- Norman et al., 1999; - Hill and Boudreau, 1999.
Drinking alcohol	- Murgraff et al., 2001; - Conner et al., 1999; - Rise and Wilhelmson, 1998.
Eating low fat food	- Armitage and Conner, 1999; - Berg et al., 2000.
Engaging in physical activity	- Dishman et al., 2002; - Faulkner and Biddle 2001; - Kerner and Kalinski, 2002; - Courneya and Bobick, 2000; - Courneya et al., 2001.
Choosing a career	- Giles and Lamoure, 2000.
Wearing a safety helmet	- Quine et al., 1998; 2001; 2002.

The results of these studies confirm the validity of the theory. Furthermore, the results show that the Theory of Planned Behaviour is a model which can predict a wide range of behaviours in which persons have incomplete control. Therefore the TPB was used in

this research in order to examine teachers' intention to continue to use ICT in their teaching and, mainly the intention of executives of education (head teachers, district officers and school counsellors) to support the uptake of ICT in their schools.

In addition to research on a wide range of human behaviours, there are also applications of the Theory of Reasoned action and the Theory of Planned Behaviour to studies in education, which are discussed in the following sections.

3.5.4 Empirical education evidence for the Theory of Reasoned Action

In education, the Theory of Reasoned Action has been used to predict behaviours such as classroom attendance (Fredricks and Dossett, 1983), teaching science using hands-on activities (Koballa, 1986), enrolling in a high school science course (Crawley and Coe, 1990), enrolling in elective physical science course (Koballa, 1988), mathematics learning (Norwich and Jaeger, 1989) and science learning (Norwich and Duncan, 1990). Some of these studies are discussed below.

Koballa (1988) used the theory of Ajzen and Fishbein to analyse the attitudes of 94 female junior high school students in order to identify the determinants of their intentions to enroll in at least one elective physical science course in high school. He found that the intentions of students to enroll in at least one physical science course "were found to be a function" of both attitude toward performing the behaviour and subjective norm. Attitude towards performing the behaviour and subjective norm, in combination, were found to predict behavioural intention "with a high degree of accuracy". In addition, he found that the attitude towards the behaviour had more weight than the subjective norm. Attitude towards the behaviour and subjective norm were found to have a significant relation with the "products of salient belief scores" and "the products of salient referent scores". In contrast, some of the external variables (academic ability, science grades, and attitude towards science) did not predict the behavioural intentions. According to Koballa (1988), this happen because these external variables did not have a relationship with the females' attitudes towards the behaviour and subjective norm (ibid, p. 479).

Crawley and Coe (1990) used this theory in order to investigate the intentions of grade 8 students to enroll in a high school science course. The sample consisted of five randomly

selected earth science students. The prediction of students' intention was tested using the following external variables: attitude, and subjective norm, attitude and subjective norm alone, and "disaggregated data on attitude and subjective norm". "Results of the study revealed attitude and subjective norm to be the sole predictors of behavioural intention for the aggregated data, but to be differentially effective for groups formed on the basis of sex, ethnicity, general ability, and science ability" (ibid, p. 461).

In another study, Norwich and Jaeger (1989) used the Ajzen and Fishbein Theory of Reasoned Action, in order to investigate how pupils' attitudes and intentions about learning mathematics "might be related to subsequent mathematics learning and achievement" (ibid, p. 314). Their sample consisted of 142 pupils in a large inner city comprehensive school. The results showed that pupils with more positive attitudes tended to have more intention to engage in future mathematics learning behaviours. In contrast, the subjective norm did not have a significant relationship with behavioural intention. "There was a weak relationship between the two measures of learning behaviour, but with neither measure did intention independently predict future behaviour once prior behaviour was taken into account. The best predictor of subsequent mathematics achievement was prior achievement, though teacher-reported learning behaviour did have an independent relationship with subsequent achievement" (ibid, p. 314). Furthermore, Norwich and Duncan (1990) also mention the link between the intention and behaviour; they investigated firstly "a repeated measures procedures for assessing behavioural intention and learning behaviour in the field of secondary school science learning" and secondly "the relationship of perceived preventive factors to other affective variables in a modified version of the Ajzen-Fishbein theory of reasoned action" (ibid, p. 312), using a sample of 82 boys and girls. As in the previous study of Norwich and Jaeger (1989), the results showed that pupils with more positive attitudes had more intention to engage in future learning behaviours. Moreover, the subjective norm was not found to have a significant relation with behavioural intention. In addition, they found that "those pupils who reported that they had engaged in learning behaviours in the past also had higher behaviour intentions" (ibid, p. 319).

The Theory of Reasoned Action has also been used in more recent research into the uptake of ICT in the work place. Karahanna et al., (1999) used the Theory of Reasoned Action in order to examine differences in pre-adoption and post-adoption beliefs and

attitudes. More specifically, their study investigated "whether differences exist between the determinants of (1) adoption and usage of IT, (2) attitude towards adopting and attitude towards continuing to use IT, and (3) subjective norm toward adopting and subjective norm toward continuing to use IT" (ibid, p. 184). The sample consisted of 268 people (107 were from potential adopters of Microsoft Windows and 161 were from users of Microsoft Windows). According to Karahanna et al., (1999), the link between attitude and behavioural intention is weaker for potential adopters than for users. They also found that the link between subjective norm and behavioural intention is weaker for users than for potential adopters. Their findings indicate that potential adopters have weaker beliefs (i.e. less positive) underlying their attitude than users. They also found that top management, supervisors and colleagues significantly underlie subjective norm for both potential adopters and users. However, top management, friends, and supervisors are considered as the top three determinants of subjective norm whereas colleagues, computer specialists and top management are the top three determinants of users. Therefore, these results support the role of subjective norm on behavioural intention.

3.5.5 Empirical education evidence for the Theory of Planned Behaviour

In education, the Theory of Planned Behaviour, which as explained earlier (see Section 3.5.3) includes perceived behavioural control, has been used in order to investigate teachers' intentions to provide dietary counselling to Tanzanian primary schools (Astrom and Mwangosi, 2000), to teach HIV/AIDS education (Burak, 1994; Lin and Wilson, 1998), to use investigative teaching methods (Crawley, 1990) and intentions regarding the implementation of science education reform strands (Haney et al., 1996). The theory has also been used to understand and predict students' intentions to enroll in physics (Crawley and Black, 1992) as well as to complete high school (Davis et al., 2002). The most relevant research is described below.

Grawley (1990) used the Theory of Planned Behaviour to predict the intentions of fifty elementary and secondary school teachers of physical science to use investigative teaching methods. Their results indicated that attitude, subjective norm, and perceived behavioural control "provide significant, linear contributions to the prediction of behavioural intention" (ibid, p. 694).

In another study, Crawley and Black (1992) used the Theory of Planned Behaviour to understand and predict the behavioural intentions of 264 science students regarding enrolling in a physics course. According to the results of this study "students' intentions to enroll in a high school physics course were determined by their attitude towards enrollment and their degree of perceived behavioural control. Attitude, subjective norm, and perceived behavioural control were, in turn, formed as a result of specific beliefs that students held about enrolling in physics" (ibid, p. 29).

Randall (1994) used the Theory of Planned Behaviour, in order to explain and predict why graduate students in Ireland enroll in elective business ethics courses while others do not. The sample consisted of 178 students. According to Randall (1994), the Theory of Planned Behaviour predicted with success the intention of students to sign up for an elective ethics class. The impact of attitude towards the behaviour and perceived behavioural control in students' intention to take the ethics course was greater than the influence of the subjective norm.

A more recent study by Haney et al., (1996) has used the theory to examine the influence of attitude towards behaviour, the subjective norm and perceived behavioural control of 800 science teachers' intentions to engage in the targeted behaviours. The purpose of this study was to "determine the factors influencing teachers' intentions to implement the four strands (inquiry, knowledge, conditions and applications) of the State of Ohio's (U.S.) Competency Based Science Model" (ibid, p. 971). The researchers found out that "the attitude toward the behaviour construct had the greatest influence of Ohio teachers' intent to implement all four strands of the science model; several salient beliefs for each of the three constructs significantly contribute to the constructs; and significant differences exist between various teacher populations for both intent and the three constructs" (ibid, p. 971).

Lin and Wilson (1998) used the TPB to predict and examine science teachers' intentions to teach about HIV/AIDS and to recognize numerous factors, which may influence science teachers' decisions to teach or not to teach about HIV/AIDS. They found that the attitude towards teaching about HIV/AIDS, the subjective norms and the perceived behavioural control, could explain 74% of the variance in science teachers' intentions.

Attitude toward teaching about HIV/AIDS was the most significantly important factor in the prediction.

In a more recent study, Astrom and Mwangosi (2000) applied the Theory of Planned Behaviour to investigate Tanzanian teachers' intention to give dietary advice to their students as part of health education. They administered a questionnaire to 232 primary school teachers and 195 teacher-trainees. In both groups perceived behavioural control was found to influence significantly their intentions to give dietary advice to their students.

Czerniak, et al., (1999) applied the TPB in order to examine 204 science teachers' intention to use educational technology in their classrooms. They found that teachers' intention was influenced by subjective norms (e.g. influence of colleagues, parents), and perceived behavioural control (e.g. funding, enough equipment, more software). Perceived behavioural control provided the strongest influence on behavioural intention. Attitude toward behaviour did not have a significant influence on intention.

The Theory of Planned Behaviour has also been applied in technology adoption and usage contexts to explain an individual's adoption of ICT. For instance, Harrison, et al., (1997) used the TPB to explain and predict small business executives' decisions to adopt Information Technology. They found that attitude toward the behaviour, subjective norm and perceived behavioural control were all significant in predicting a small business executive's decision. According to Harrison et al., (1997), the TPB could be used as a general theory of ICT adoption in small businesses. Morris and Venkatesh (2000) used the TPB to investigate the impact of age on new software usage by workers. They found that younger people were influenced by attitude towards the behaviour while older people were more influenced by subjective norm and perceived behavioural control. However, the influence of subjective norm on the older people did diminish over time.

3.6 CONCLUSIONS

This chapter presented and discussed firstly, the methods used to measure attitudes and secondly, the theories of attitudes towards computers as well as the most relevant theories between attitudes and behaviour.

Firstly, a number of instruments of attitudes towards computers were presented. As we have seen in Section 3.4 numerous studies over the past two decades have focused on the design of research instruments to measure attitudes towards computers. These studies have developed various instruments that use different subscales such as questionnaires and attitude tests. In addition, these instruments were administered to specific population and age groups and the majority of these reported high reliability and validity. However, there is not an agreement, among researchers above, which one of these instruments is the most reliable and valid to measure the attitudes of people towards computers. Therefore, in order to measure the attitudes of Greek educators' towards computers in this study several data collection instruments were used in the pilot study to investigate their suitability and reliability (see Chapter 4, Section 4.5.2.3).

Secondly, three models, which have been among the most widely applied in explaining general ICT adoption, were presented and discussed. These were the Theory of Reasoned Action, the Technology Acceptance Model and the Theory of Planned Behaviour. All of these theories suggest that attitudes influence intention and behaviour. More specifically, the TRA posits that behaviour is determined by intention to perform the behaviour, while the intention is determined by attitude towards behaviour (favourable or unfavourable) and subjective norm (perception of social pressures to perform or not perform the behaviour). The TPB was developed as an extension of TRA by including the perceived behavioural control to account for conditions where people do not have complete control over their behaviour. Perceived behavioural control is the individual's perception of the ease or difficulty of performing the behaviour and is included as a variable that has both a direct effect on behaviour and an indirect effect on behaviour through intentions. The Technology Acceptance Model is an adaptation of the Theory of Reasoned Action and was developed to predict user acceptance and use. TAM theorises that an individual's actual technology usage is determined by intention, which in turn is determined by perceived usefulness and perceived ease of use.

The above three models have been successfully applied to a large number of situations for predicting of intention and behaviour. However, the TRA and TAM have specific limitations. One of the limitations of the TRA is that it predicts and explains behaviours of social relevance that are under a person's volitional control. In this study teachers' intention to continue to use ICT in their teaching and executives' of education intention to support the uptake of ICT were not under complete volitional control and therefore the TRA was not the most appropriate theory. On the other hand, the limitation of TAM as discussed in Section 3.5.2 is that it does not include the subjective norm. As we have seen in Section 3.5.1 and 3.5.3 subjective norm is a very important variable in TRA and TPB and according to the findings of many studies it influences the intention and behaviour. More specifically, TAM explains why people accept or reject technology, but does little in developing our understanding of actual technological uptake and use.

Therefore, the TPB was considered to be the most appropriate theory in this study in order to predict teachers' intention to continue using ICT and executives' intention to support the uptake of ICT in their schools. In addition, the TRA was utilized in order to compare its predicted validity with the predicted validity of the TPB. While the TPB has been successfully applied across a wide range of behavioural domains, there have been relatively few applications of the model in teachers' intention to use ICT in their teaching (see Czerniak et. al., 1999). In addition, no research has been undertaken to examine whether this model also holds for head teachers', district officers' and school counsellors intention and behaviour in supporting the uptake of ICT in schools. Thus, the present study represents the first attempt to apply the Theory of Planned Behaviour in order to predict and examine executives' (head teachers, district officers and school counsellors) intentions to support the uptake of ICT in schools.

The hypothesis of this study is that head teachers', district officers' and school counsellors' intention and behaviour in supporting the uptake of ICT in their schools might be influenced by their attitudes towards computers as well as by their attitudes towards supporting ICT uptake. Also their intention and behaviour might be influenced by subjective norms. Finally, the hypothesis is made that these executives will support the uptake of ICT in their schools only if they have resources and opportunities (e.g. time, training opportunities, hardware and software).

This study also used the TPB in order to investigate teachers' intention to continue using ICT in their teaching. More specifically this theory was used to examine the influence of executives on teachers' intention. This is examined through the subjective norm component. In addition an examination was made of whether the factors that facilitate or impede teachers' ICT use involves those factors, that are related to the support that is provided by Greek head teachers, district officers and school counsellors. The next chapter presents the methodology used in developing the attitudes instrument as well as the components of the Theory of Planned Behaviour.

CHAPTER 4
RESEARCH METHODOLOGY, DESIGN AND PROCEDURE

4.1 INTRODUCTION

This chapter describes the design and the methodology used in this study. Firstly, the purpose and the objectives of this study are presented. Secondly, the rationale for using survey as the most appropriate method in this study is discussed and the rationale for using questionnaires and interviews for data collection. The four phases that were conducted in this study are presented.

Phase 1, was the literature review of changes and innovations within schools, attitudes towards computers and theories of attitudes and behaviour. Phase 2, consisted of the pilot study that was carried out in a small number of Greek primary schools. Phase 3, was the main study, which was conducted in 72 Greek primary schools that used ICT for teaching and administrative purposes. In this chapter the instruments that were used in the main study, the sample, as well as the process of data collection are described. Phase 4, involved the coding of data and the methods of data analysis are explained.

4.2 THE AIM AND THE OBJECTIVES OF THIS STUDY

The aim of this study was to investigate: a) the factors that influence head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools and b) the influence of these educational leaders on teachers' intention and behaviour to use ICT in their teaching.

The objectives of this study as has already been explained in Chapter 1 (see Section 1.4) were to:

1. investigate the uptake of ICT in Greek primary schools;
2. measure the attitudes of Greek teachers, head teachers, district officers and school counsellors towards computers;
3. find the relationship and differences between attitudes towards computers and a number of variables (e.g. age, qualifications, computer knowledge);

4. investigate the influence of attitude toward the behaviour, subjective norm and perceived behavioural control on teachers' intention and behaviour to use ICT in their teaching during the following three months;
5. investigate the influence of attitude towards computers on head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools;
6. investigate the influence of attitude toward the behaviour, subjective norm and perceived behavioural control on head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools during the following three months;
7. identify head teachers', district officers' and school counsellors' behavioural, normative and control beliefs regarding the support of the uptake of ICT in their schools, as well teachers' beliefs regarding the use of ICT in their teaching; and
8. compare the predictive validity of the TRA and TPB in predicting teachers' ICT use in teaching and head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools.

4.3 RESEARCH DESIGN AND METHODOLOGY

The choice of the research design and methodology and data gathering techniques was based on the need to investigate the uptake of ICT in Greek primary schools, the attitudes of educators towards computers, teachers' intention to use ICT in their teaching as well as head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools. The method chosen, as the most appropriate, was the survey methodology; the instruments used for data collection were questionnaires and interviews, which are used in large scale surveys to find more details about the sample. The rationale for selecting the survey method as well as the instruments of the questionnaires and interviews are discussed in this and the following sections.

According to Cohen et al., (2000), eight different types of research methods exist in education. These are: 1) naturalistic and ethnographic methods, 2) historical research, 3) surveys, longitudinal, cross-sectional and trend studies, 4) case studies, 5) correlational research, 6) ex posto facto research, 7) experiments, quasi-experiments and single-case research, and 8) action research. From the above mentioned research methods, method

(3), survey was chosen because, as will be discussed further in this section, this method has been successfully implemented firstly in a large number of studies to investigate the uptake of ICT in schools, secondly in a large number of studies in order to measure the attitudes of people towards computers, and thirdly in the majority of studies which implemented the Theory of Reasoned Action and Theory of Planned Behaviour.

According to Cohen et al., (2000), survey methodology can be used to "gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared, or determining the relationships that exist between specific events" (ibid, p. 169). Surveys can be conducted on a large scale by large research teams in order to investigate large populations or on a smaller scale carried out by the lone researcher (Cohen et al., ibid.).

Cohen et al., (ibid) claim that a survey is used to "scan a wide field of issues, populations, programmes etc. in order to measure or describe any generalised features". The main reasons they argue for using a survey are the following:

- "gathers data on a one-shot basis and hence is economical and efficient;
- represents a wide target population;
- provides descriptive, inferential and explanatory information;
- manipulates key factors and variables to derive frequencies;
- gathers standardized information (i.e. using the same instruments and questions for all participants);
- ascertains correlations;
- captures data from multiple choice, closed questions, test scores or observation schedules;
- supports or refutes hypotheses about the target population;
- generates accurate instruments through their piloting and revision;
- makes generalizations about, and observes patterns of response in, the targets of focus;
- gathers data which can be processed statistically;
- usually relies on large scale data gathering from a wide population in order to enable generalizations to be made about given factors or variables" (ibid, p. 38-40).

Over the last 20 years, survey research has been used in many empirical studies in order to investigate the use of computers within schools (e.g. Pelgrum and Plomp, 1991;

Pelgrum and Anderson, 2001; DfES, 2003). In England, the Department for Education and Skills (DfES), conducts large scale surveys each year in order to collect information about the availability and use of ICT in primary, secondary and special needs schools (see DfES, 2003; DfES, 2002; DfEE, 2001; DfEE, 2000; DfEE, 1999; DfEE, 1998). The most recent of these surveys was carried out in 2003 of 930 primary, 810 secondary and 420 special needs schools, with the aim of gathering information on the number and type of computers available in schools, the extent of the use of ICT across curriculum subjects, use of the Internet and other electronic links, and teachers' confidence in the use of ICT (DfES, 2003). Similar research, using surveys, is carried out by the National Center for Education Statistics of the U.S. Department of Education. For example, two surveys were conducted in 1999, in order to investigate teachers' use of computers or the Internet for instructional purposes (NCES, 2000) and between the years 1994 and 2000 in 1218 schools with the aim of examining public schools' access to the Internet (NCES, 2001).

Surveys have also been used recently in a study carried out by Williams et al., (2000) in 300 primary and 100 secondary schools in Scotland, in order to investigate teacher's needs for knowledge and skills in relation to the effective use of ICT. Another large scale study that has used surveys is the one carried out by the International Association for the Evaluation of Educational Achievement (IEA) among national representative samples of schools from 26 countries, between the years 1997-1999, with the aim of examining, amongst other factors, the problems that hinder the introduction of computers into schools (see Pelgrum, 2001; Pelgrum and Anderson 2001). Therefore, it is clear from the above studies that survey techniques are appropriate in the investigation of the uptake of ICT in schools.

The survey method has also been used in many studies, aimed at measuring educators' attitudes towards computers. For example, an international study of the use of computers in 22 education systems completed by the International Association for the Evaluation Achievement, at the end of the 1980s, used the survey method in order to measure the attitudes of teachers and head teachers towards computers (Pelgrum and Plomp, 1991). Moreover, the survey method has been used in recent research, with the aim of developing and examining the validity of attitudes' scales. For instance, Shapka and Ferrari (2003) used the survey method in order to investigate the computer-related

attitudes of 56 pre-service teachers who were in a programme being trained to teach in either secondary or primary schools.

Additionally, the survey has been used in the majority of research that applies the Theory of Reasoned Action and the Theory of Planned Behaviour (see Chapter 3). For example, in education, Astrom and Mwangosi (2000) surveyed 232 primary school teachers and 195 teacher-trainees in order to investigate whether 1) the Theory of Planned Behaviour (TPB) "will provide an empirically adequate explanation of the intention to provide dietary advice in primary school in terms of the simultaneous predictive power of attitudes, subjective norms, and perceived behavioural control, separately for teachers and teacher-trainees, 2) perceived behavioural control will add to the prediction of behavioural intention beyond attitudes and subjective norms and 3) The predictive strength of the components of the TPB varies as a function of direct experience with dietary counselling, that is, between teachers and teacher-trainees" (ibid, pp. 282-283).

The above studies show that the survey method can be successfully used to investigate the uptake of ICT in schools, to measure the attitudes of educators towards computers as well as being implemented in studies with the aim of predicting the intention and behaviour of people according to the Reasoned Action and Planned Behaviour theories. Therefore, from this section it is clear that survey method was appropriate for this study in order to investigate the attitudes of educators towards computers, teachers' intention to continue to use ICT in their teaching and head teachers', district officers' and school counsellors' intention to support the uptake of ICT in Greek primary schools.

Surveys can be classified in many ways. There are longitudinal, cross-sectional and trend studies (see Cohen et al., 2000). This study was a longitudinal study. According to Cohen et al (2000), "the longitudinal study gathers data over an extended period of time; a short-term investigation may take several weeks or months; a long-term study can extend over many years" (p. 174). One type of longitudinal design is the panel study. In a panel study the same sample is measured two or more times (Wiersma, 2000). This study is a panel study, because as discussed in Section 4.6 some of the data (e.g. ICT use and support of the uptake of ICT data) were collected from the same sample twice (see Figure 4.1).

The collection of data in surveys involves one or more of the following data-gathering techniques: "structured or semi-structured interviews, self completion or postal questionnaires, standardized tests of attainment or performance, and attitudes scales" (Cohen and Manion, 1997, p. 83). The instruments used in the current study were the questionnaire (e.g. personal information, computer knowledge, computer attitudes towards computers, beliefs, perceived behavioural control) and the interview. By using both questionnaires and interviews it was possible to compare and contrast the data for inconsistencies. According to Yin (1989) this helps control for both construct validity and external validity. The rationale for using these instruments is discussed in the following sections.

4.3.1 Instruments

4.3.1.1 Questionnaires

In order to investigate the current level of ICT use in Greek primary schools, and teachers', head teachers', district officers' and school counsellors' attitudes towards computers, data were collected by four different questionnaires: The Teacher Questionnaire, the Head Teacher Questionnaire, the District Officer Questionnaire, and the School Counsellor Questionnaire (see Appendix A1, B1, C1 and D1). These questionnaires were also used to examine the influence of the attitude towards the behaviour, the subjective norm and perceived behavioural control on teachers' intention to use ICT in their teaching as well as on head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools.

This study used questionnaires for a number of reasons. Firstly, questionnaires have many advantages. According to Cohen et al., (2000), it "is a widely used and useful instrument for collecting survey information providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straightforward to analyse" (ibid p. 245). In addition, according to Oppenheim (2000), the main advantages of questionnaires are: "a) low cost of data collection, b) low cost of processing, c) avoidance of interviewer bias... d) ability to reach respondents who live at widely dispersed addresses or abroad..." (ibid, p. 102).

Similarly, apart from the above advantages, questionnaires have been used in the majority of studies that investigated the uptake of ICT in schools. For instance, questionnaires were used in the studies by the Department for Education and Skills in

United Kingdom (see DfES, 2002, 2003) and the Department of Education in United States of America (NCES, 2000; 2001) with the purpose of investigating several factors, which influence the implementation of computers in schools, such as the number of teachers who use computers in their teaching and the frequency of using them, the availability of hardware and software for teaching and administrative purposes and access to the Internet. In addition, questionnaires were also used for the studies measuring the attitudes of educators towards computers. For instance, the IEA study, conducted in 26 educational systems, used attitudes questionnaires in order to measure the attitudes of head teachers towards computers (Pelgrum and Anderson, 2001). Hence, the decision to use questionnaires for the same purpose in my study was based on a similar rationale to the ones mentioned above.

Furthermore, as far as the Theory of Reasoned Action and Theory of Planned Behaviour, implemented by this study in order to investigate the teachers' intention of using ICT as well as the intentions of executives to support the uptake of ICT, is concerned, the literature review shows that questionnaires are the only instrument used. Questionnaires have been mainly used in many studies not only in Phase 2 (the pilot study) to elicit the behavioural, normative and control beliefs but also in the questionnaires' final version which aims to determine the scope of prediction of intention and behaviour of people in relation to several attitudinal factors.

Questionnaires, as a method of data collection, have some restrictions. These restrictions are related to the validity of postal questionnaires. According to Cohen and Manion (1997), validity of postal questionnaires can be seen from two different viewpoints. "First, whether respondents who complete questionnaires do so accurately and second, whether those who fail to return their questionnaires would have given the same distribution of answers as did the returnees" (ibid, pp. 99-100). In addition, Oppenheim (2000), claims that some of the disadvantages of postal questionnaires are: a) generally low response rates, and consequent biases; ...b) no opportunity to correct misunderstandings or to probe, or to offer explanations or help; no control over the order in which questions are answered, no check on incomplete responses, incomplete questionnaires or the passing on of questionnaires to others..." (ibid, p. 102). On the other hand, Cohen and Manion (1997), claims that the myths about postal questionnaires are not borne out by the evidence. For example, the levels of response to postal surveys

"are not invariably less than those obtained by interview procedures; frequently they equal, and in some cases surpass, those achieved in interviews. Nor does the questionnaire necessarily have to be short in order to obtain a satisfactory response level" (p. 111).

In this study a large number of self-administered and small number of postal-questionnaires (see Appendices A1-D1) were used in order to avoid small response rates (see Cohen and Manion, 1997). As will be discussed in Section 4.6.7, the self-administered questionnaires were handed out to respondents by myself as well as by my colleagues in the University of Athens. According to Oppenheim (2000), the self-administered questionnaire ensures a high response rate (ibid, p. 103). Details of each questionnaire also given in Section 4.6.

4.3.1.2 Interviews

As is discussed in Section 4.6.4, during Phase 3 a number of interviews were conducted with teachers, head teachers, district officers and school counsellors. The purpose of the interviews for this study was also mainly to collect additional data to illuminate the quantitative data. However, as is shown in Chapters 6, 7 and 8 there was extensive and sufficient evidence from the survey data not to require analyzing the interviews' data.

The interview as a technique of collection of data has been used in a number of surveys that investigated ICT in the schools as well as the attitudes and the opinions of educators towards computers. This is usually as additional illustrative information for the study (see for example Williams et al., 2000).

4.3.2 Research phases

This research was constituted of four phases that are shown in Figure 4.1. Phase 1 included the review of literature of educational changes and innovations in schools as well as of theories of attitudes and behaviour (October 1999-October 2003).

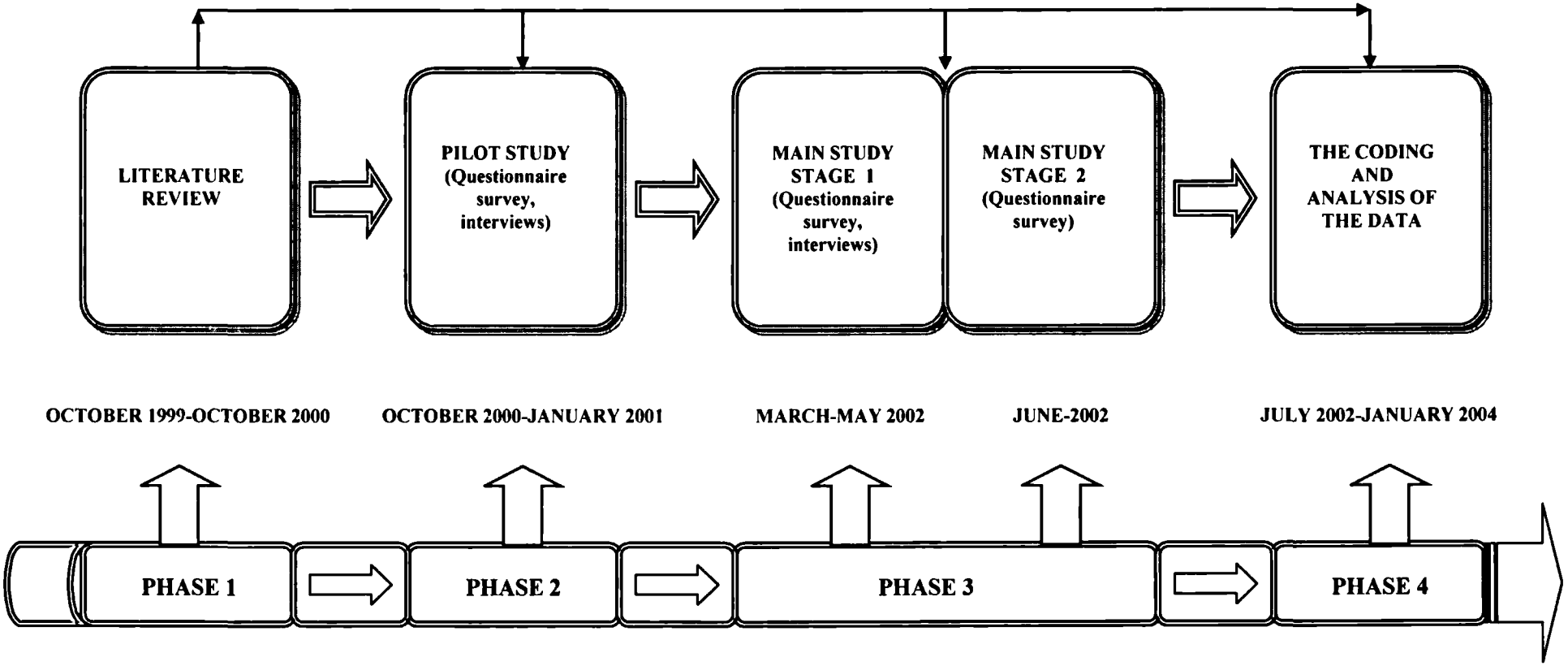

Figure 4.1 – The phases of this study.

Phase 2 included the design and the construction of the instruments for the pilot study which involved a survey of a small number of Greek primary schools (October 2000-January 2001). According to Cohen et al., (2000), the pilot study it is important step in surveys that influences the validity of the research. They claim that a rigorous survey "formulates clear, specific objectives and research questions, ensures that the instrumentation, sampling, and data types are appropriate to yield answers to the research questions, ensures that a high level of sophistication of data analysis is undertaken as the data will sustain (but no more)" (ibid. p. 173).

Phase 3 constituted two stages, the main research which was carried out in schools that were using ICT for administrative and teaching purposes (March-June 2002). The data were collected through questionnaires and interviews with teachers, head teachers, district officers and school counsellors. In addition, data were collected from the websites of schools and districts, from documents about the policy of ICT in schools and also from informal discussions and observations made during visits to some schools and districts. Finally, Phase 4 involved the coding and analysis of data (July 2002-January 2004). The phases of this research are shown in Figure 4.1 and are discussed in detail in the next sections.

4.4 PHASE 1: LITERATURE REVIEW

Reviewing the literature on educational changes and ICT innovation as well as on theories of attitudes was the first step of this study. During the initial 12 months of research (October 1999-October 2000), different sources of information were investigated, including academic and professional books, journals, web sites, online databases, reports and government documents. In addition, the literature review was continued though to Phase 4 (see Figure 4.1).

More specifically, the aims of Phase 1 were:

1) to conduct a literature review of the educational changes and innovations in schools, in order to determine those factors which influence the uptake of ICT in schools as well as to determine the role of head teachers, district officers and school counsellors in these changes (see Chapter 2),
2) to conduct a literature review of different theories of attitudes and behaviour, in order to determine which of these are the most appropriate to investigate a) the

attitudes of teachers, head teachers, district officers and school counsellors towards computers b) teachers' intention and behaviour to use ICT in their teaching and c) head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools (see Chapter 3).

The literature review of the educational changes and innovations was presented in Chapter 2. The results of this literature review show that there are many models of educational changes and innovations such as the Research, Development and Diffusion Model, the Social Interaction Model, the Problem Solving Model, Fullan's Model (see Chapter 2). Most relevant with the present research was Fullan's Model. According to Fullan each change or innovation has three phases. These are the initiation, the implementation and the continuation phase. One of the main conclusions that arises from such research in the field of educational change is that the roles of head teachers, district officers and school counsellors are important factors that affect the success of initiation and implementation. More specifically, the results of the literature showed that head teachers' and administrators' support and help in acquiring hardware and software, in arranging adequate teacher training programmes and in organizing curriculum change and innovation are essential for the successful integration of ICT by teachers in their school.

According to the literature review, it has been shown that the attitudes of head teachers affect the uptake of ICT to a great extent. However, from the literature review no research has been found which refers specifically to the effects of the attitudes of the district officers and of school counsellors. In addition, because, according to the literature, these people may have an effective role in innovation, this research assumed that the attitudes of the head teachers, district officers and of the school counsellors might affect the support of the uptake of ICT, in a similar way to the attitudes of head teachers shown in previous research. This hypothesis leads me to the literature review of the theories of attitudes in Chapter 3.

Chapter 3 discussed the main theories related to attitudes towards computers and attitudes and behaviour, which come from social psychology. The two theories considered relevant to this research were the Theory of Reasoned Action and the Theory of Planned Behaviour. According to these theories, as discussed in Sections 3.5.1 and 3.5.3 (see Chapter 3) people's attitudes are an important precursor to behaviour. These

theories were used in this study in order to investigate teachers' intention and behaviour to use ICT in their teaching and educational executives' intention and behaviour to support the uptake of ICT in Greek primary schools.

4.5 PHASE 2: THE PILOT STUDY

4.5.1 The aim and the objectives of the pilot study

The aim of the pilot study was to develop some research methods and instruments in order to determine which of these were the most appropriate to investigate the aim and objectives of the main study.

The objectives of the pilot study were:

1) to design, construct and test the validity of the questionnaires that were to be used in the main study in order to meet its aims and objectives,
2) to validate the questionnaires and attitude scale by conducting a survey of a small sample of Greek primary schools a) to determine the current levels of ICT use in schools, b) to measure the attitudes in this pilot sample of teachers, head teachers, school counsellors and district officers towards ICT, c) to measure Greek teachers' attitude toward behaviour, subjective norm and perceived behavioural control on their intention to engage in using ICT in their teaching during the following three months, and d) to measure head teachers', district officers' and school counsellors attitude toward behaviour, subjective norm and perceived behavioural control on their intention to engage in supporting the uptake of ICT in their schools during the following three months,
3) to elicit in the pilot schools Greek teachers' behavioural, normative and control beliefs about their intention to engage in using ICT in their teaching during the following three months, and d) to elicit Greek head teachers', district officers' and school counsellors' behavioural, normative and control beliefs about their intention to engage in supporting the uptake of ICT in their schools during the following three months.

4.5.2 The questionnaires' design: Pilot study

The design of the four questionnaires was based on previous questionnaires identified from the literature review given in Chapter 2 as well as the attitude theory and the theories of Reasoned Action and Planned Behaviour (see Chapter 3). The questionnaires

were designed using many items from existing instruments. For example, in Part 3 of all four questionnaires (see Appendices A1-D1) that refer to attitudes towards computers, many items from the Computer Attitude Scale (Loyd and Gressard, 1984) and the Attitudes Toward E-mail Scale (D'Souza, 1992) were used. According to Rosier (1997), "the advantage of using existing instruments is that the work of development and validation has generally been undertaken and published" (ibid, p. 156). Moreover, many new items were used in the questionnaire. For example, in Part 2, which refer to the Theory of Planned Behaviour, new questions were designed in order to measure the behavioural, normative and control beliefs of teachers and executives of education, because the previous questionnaires did not include items which measured these factors.

The questionnaires were designed by using a variety of questions. These were dichotomous questions, multiple choice questions, rank ordering, rating scales and open-ended questions. According to Cohen et al., (2000) dichotomous questions can be used for the collection of information arising from questions, which have a (Yes) or (No) as an answer or for the collection of information by variable issues. In the head teacher's questionnaire, for example, there is a dichotomous question to collect information taking into account whether the school had a web site. In multiple-choice questions the respondent is given the choice to select from a list of one (a single answer mode) or several responses (multiple answer mode). A question of this kind, for example, is included in the district officer's questionnaire (see District Officer Questionnaire, on Appendix C) and refers to the use of computers in administration. The advantages of dichotomous and multiple choice questions are that they "can be quickly coded and quickly aggregated to give frequencies of response (Cohen et al., 2000, p. 251).

In order to measure teachers', head teachers' district officers' and school counsellors' attitudes towards computers as well as other factors that are related to their intention to use ICT and to support the uptake of ICT rank ordering questions were used in the questionnaires. For example, rating scales were used in Part 2 of all four questionnaires, which refers to the Theory of Planned Behaviour (the semantic differential scales) as well as in Part 3 which refers to the attitudes towards computers (Likert scales). According to Cohen et al., (2000), "ranking are useful in indicating degrees of response" (ibid, p. 252). The reasons for using the above scales are discussed in Sections 4.6.1.3.1 and 4.6.1.2.1.

Additionally, with the intention of eliciting data on the uptake of ICT which could not be achieved purely through closed questions, open-ended questions were also used of necessity in the questionnaire. For example, in Part 1 of the Teacher's Questionnaire, teachers were asked to indicate the type of support they had received for their development in the use of ICT in their teaching. According to Cohen et al., (2000), "the open-ended question is a very attractive device for smaller scale research or for those sections of a questionnaire that invite an honest, personal comment from the respondents in addition to ticking numbers and boxes" (ibid, p. 255).

4.5.2.1 The design of Part 1 of the questionnaires: Pilot study

Part 1 of Teacher's, Head Teacher's, District officer's and School Counsellor's Questionnaire was designed to elicit quantitative data about the introduction and implementation of ICT in Greek primary schools. The sections of this part of the questionnaires are presented and discussed in Phase 3 (see Section 4.6.1.1 and Section 4.6.2.2) (see also Appendices A1-D1).

4.5.2.2 The design of the questionnaire of the Theory of Reasoned Action and Theory of Planned Behaviour: Pilot study

In this study, as will be discussed in Phase 3, the Theory of Reasoned Action (TRA) (see Chapter 3, Section 3.5.1) and Theory of Planned Behaviour (TPB) (see Chapter 3, Section 3.5.3) were used in the Teacher Questionnaire in order to investigate the following behaviour: "Using ICT in my teaching during the next three months". In addition, the TPB was used in the Head Teacher, District Officer and School Counsellor Questionnaire in order to investigate the following behaviour: "Supporting the uptake of ICT in my school/schools during the next three months". According to Ajzen (2002), "all predictors in the theory of planned behaviour can be assessed directly, by asking respondents to judge each on a set of scales. In addition, attitude towards the behaviour, subjective norm and perceived behavioural control can also be measured indirectly, on the basis of the corresponding beliefs" (p. 4). Therefore, in the pilot study, the TPB was used for the following two reasons.

Firstly, the TRA and TPB were used to design and construct the items which were to be used in the main study in order to measure directly teachers', head teachers', district officers' and school counsellors' intention, attitude towards behaviour, subjective norm and perceived behavioural control. These items were also used in the pilot study in order

to test their validity. This part of the questionnaire was designed and constructed based on the methodology described by Ajzen and Fishbein (1980) and Ajzen (2002).

Secondly, the TRA and TPB was used in order to elicit teachers', head teachers', district officers' and school counsellors' behavioural, normative and control beliefs. According to Ajzen (2002), "pilot work is required to identify accessible behavioural, normative, and control beliefs. Respondents are given a description of the behaviour and are asked a series of questions..." (p. 8). Therefore, teachers were asked to list in an open-ended questionnaire (see Appendix E): a) the advantages and disadvantages of using Information Communication Technology in their teaching during the next three months (behavioural beliefs), b) the persons or groups who would approve or disapprove of using ICT in their teaching during the next three months (normative beliefs) and c) the factors or circumstances which make it easier or more difficult for them to use ICT in their teaching during the next three months (control beliefs). In addition, head teachers, district officers and schools counsellors were asked similar questions regarding their behavioural, normative and control beliefs about the support of the uptake of ICT in their schools (see Appendix E).

The information generated by analysis of the open-ended questions provided the basis to construct Part 2 of the questionnaire of the Theory of Planned Behaviour for Phase 3 (see Section 4.6). According to Ajzen and Fishbein (1980), only those salient beliefs representing a majority of beliefs are to be selected to questionnaire item construction. This part of the questionnaire was used in the main study in order to measure indirectly teachers', head teachers', district officers' and school counsellors' behavioural, normative and control beliefs. The items of this part of the questionnaire are presented and discussed in Phase 3 (see Section 4.6.1.2, Section 4.6.2.2 and Section 4.6.3.1).

4.5.2.3 The design of the questionnaires of the attitudes towards computers: Pilot study

As we have seen in Section 4.2, one of the objectives of this study was to measure teachers', head teachers', district officers' and school counsellors' attitudes towards computers. In order to investigate this objective a pilot study was conducted to design and construct an attitudes' questionnaire appropriate for measuring the attitudes towards computers in the main study.

Over the last 20 years, a number of attitude scales have been developed and used for empirical studies in order to measure the attitudes of people towards computers (see Chapter 3, Section 3.4). For the pilot study, I have reviewed many of these studies and used a large number of attitude items (151 attitudes items) in order to identify specific items, which could be relevant today. The computer attitudes questionnaires that were reviewed in more detail in the pilot study are presented in Table 4.1.

The following attitudes subscales were used in the questionnaire of attitudes in the pilot study items taken from the instruments that are presented in Table 4.1: Computer Importance, Computer Anxiety, Computer Confidence, Computer Liking/Enjoyment, Computer Usefulness, Computer Productivity, Vocation, Prestige, Negative Impact on Society, Productivity in the Classroom, Enthusiasm, Aversion-Avoidance, E-mail, Educational Impact, Social Impact, Training need. These attitude subscales were presented and discussed in detail in Chapter 3 (see Section 3.4).

Table 4.1 – Computer attitude questionnaires used in the pilot study.

Attitude's questionnaires were used	**Number of items used**
The ATC, Attitudes Towards Computers (Raub, 1981)	7
Attitudes Towards Computer (Reece and Cable, 1982)	4
The Computer Survey Scale (Stevens, 1982)	6
The CAIN, Computer Anxiety Index (Maurer and Simonson, 1984)	9
The Computer Use Questionnaire (Griswold, 1983)	6
The CAS, Computer Attitude Scale (Loyd and Gressard, 1984)	25
The CAS, Computer Attitude Scale (Loyd and Loyd, 1985)	8
Blompberg, Ericson, Lowery Computer Attitude Task (BELCAT) (Erickson, 1987)	4
Computer Anxiety Rating Scale (CARS) (Heinssen et al, 1987, Chu and Spires, (1991)	9
The Computer Attitude Scale (Pelgrum and Plomp, 1991)	17
The Attitudes toward E-mail scale (D'Souza, 1992)	6
The Attitude Toward Computer Scale (Francis, 1993)	8
The CAM, Computer Attitude Measure (Kay, 1993)	12
The CASS, Computer Attitudes Scale for Students (Jones and Clarke, 1994)	17
The Computer Questionnaire (Knezek and Miyashita, 1994)	13
Total	151

A number of items from the attitude scales that are presented in Table 4.1 were used in the pilot stage of this study for a variety of reasons. Firstly, the majority of the items of these scales were designed to measure the attitudes of people that are involved in primary or secondary education such as students, teachers, head teachers, ICT coordinators. For instance, "The Computer Attitude Scale" (Pelgrum and Plomp, 1991)

was used by the IEA study in order to measure teachers' and head teachers' attitudes towards computers. Therefore these items were relevant to the current study which had a similar sample to previous studies (i.e. teachers, head teachers, district officers, school counsellors).

Secondly, each of the computer scales of Table 4.1 has research support for its reliability and construct validity. For example the above attitude scale that was used by the IEA study was found to have a high reliability (the items of the Educational Impact and Self Confidence had reliabilities of about .90, Social Impact between .80 and .90) (see Pelgrum and Plomp, 1991).

Thirdly, the aim of the current research was to examine the attitudes of teachers, head teachers, district officers and school counsellors towards the use of a wide range of computer applications, such as the use of email in teaching, the importance of training, the effects of computers in education and in society. Therefore many items were used in order to measure the general attitudes towards computers.

4.5.3 The translation of the questionnaire and interviews

The four questionnaires and the scenarios of interviews were translated into the Greek Language (see Appendices A2-D2) and then back translated into English to confirm the adequacy of the translation. The translation was made by two bilingual persons whose mother tongue is Greek. In addition, I cooperated with two Greeks who had both recently completed their PhDs at London University, for the following reasons. The above mentioned persons were consulted to confirm as accurately as possible the content of the questionnaires and the meaning of some sections. This was to avoid any ambiguities in translation, for example in questions concerning the TRA and TPB and the attitudes towards computers.

4.5.4 The pilot study of the questionnaires

After the literature review, a pilot questionnaire was constructed which was then discussed with my supervisor and other members of Kings' College London during the research training programme in order to ensure that the questionnaires would cover adequately all those aspects which would contribute to the fullest information on the uptake of ICT in primary schools and the attitudes of educators towards computers. At the same time, copies were sent to Greek teachers, head teachers, district officers and

school counsellors for their comments and their suggestions. Many helpful comments about the questions and format were received which were incorporated into the first version of the questionnaires.

The first version was then piloted in six primary schools in order to

1) identify any remaining ambiguities,

2) identify any questions to which the replies were inadequate or otherwise unsatisfactory and

3) to see how long it took to complete it.

In addition, the pilot study was conducted in order to investigate the second and third objectives that were mentioned in Section 4.5.1.

4.5.5 The sample of the pilot study

In the pilot study the sample consisted of 20 teachers and 6 head teachers, of six Greek primary schools where computers were being used for teaching, as well as 5 district officers and 5 school counsellors of these schools. For the pilot study a sample was selected from the schools which are taking part in "The Island of Faiakes" project (see Chapter 1). These were mainly located in the area of Athens. The criteria for selecting these schools were the following:

- Schools which had similar software and hardware resources.
- ICT had to be available for teaching and administrative purposes.
- Teachers had to have received in-service training on computers in teaching.
- Head teachers, district officers, school counsellors had to be involved in the introduction of computers in their schools.

The majority of teachers, as well as head teachers, district officers and school counsellors of the pilot study had been involved to a great extent in the matter of the introduction of computers. They have faced a number of problems to date and they have considerable experience of how to deal with these. In addition, these education executives have formed particular attitudes towards computers. Therefore, the

experience of teachers and the executives of schools were supposed to support the aims of the pilot study.

Table 4.2 - The number of schools and teachers, head teachers, district officers, schools counsellors in pilot study.

Name of school *	Total number of teachers in school	Number of teachers	Number of head Teachers	Number of district officers	Number of school counsellors
The 2nd Primary School of Voulas	19	4	1	1	1
The 3rd Primary School of Neas Ionias	15	2	1	1	1
The 10th Primary School of Glifadas	17	4	1	1	1
The 13th primary school of Keratsini	18	5	1	1	1
The 21st primary school of Keratsini	8	2	1		
The 33rd primary school of Peristeri	13	3	1	1	1
Total		20	6	5**	5**

*Notes: * = In Greece the names of schools are usually classified by giving an ordinal number to them followed by the name of the area. For example, in the area of Voulas there are 20 primary schools. Therefore, the first primary school is named "The 1st Primary School of Voulas", the second "The 2nd Primary School of Voulas" etc.*
*** there were 5 and not 6 district officers and school counsellors as two of the pilot study schools had the same person in the post.*

Furthermore, the project "The island of Faiakes", in which the schools for my pilot study were chosen, was conducted under the scientific responsibility of the Mathematics and Information Technology Sector of the Department of Education of the University of Athens. As a contributor to the "The Island of Faiakes" project, I designed educational software used by the University in the project schools. As a consequence, my cooperation with the University of Athens and my involvement in the same project in 1997 ensured my easy access to these schools and the distribution along with the collection of the questionnaires avoiding possible bureaucratic and time-consuming procedures.

In Table 4.2 the distribution of the sample of the pilot study per school is presented. For example in the "The 2nd Primary School of Voulas" of the 20 teachers working in the school, four teachers participated in the study as well as the head teacher, the district officer and the school counsellor of the school participated in the pilot study.

4.5.6 The distribution of questionnaires in the pilot study

In order to obtain permission to undertake my research in the six Greek primary schools a request was made to each of these in September 2000. I explained that my research would involve the distribution of questionnaires to teachers, head teachers, district officers and school counsellors. Approval was given in October 2000.

The instruments were administered during the second week of December 2000 and at the end of January 2001. The distribution and collection of the teacher and head teacher questionnaires was made by my colleagues in the University of Athens[1]. Before the questionnaires were distributed I informed them about the objectives of my pilot study. The reason for choosing the aforementioned trainers for the distribution and collection of the questionnaires was the personal contact they had developed with the teachers and head teachers of the schools as a result of their weekly visits. This would have the advantage of having the questionnaires returned more quickly than sending them by post or distributing them myself. Consequently, this decision reduced the time for the questionnaires' collection.

The distribution and collection of questionnaires to the district officers and school counsellors, was completed by myself as a whole. At the beginning I talked with these executives on the phone having the chance to explain the purposes of my pilot study. After this I had to make an appointment with them to give them the questionnaires. Another phone call followed so as to find out whether they had filled them in and when I could pay them a visit to have them returned.

4.6 PHASE 3: THE MAIN STUDY

As was mentioned in Section 4.3.2, in Phase 3 the main study of the research involved a survey in 72 Greek primary schools which used ICT for administrative and teaching purposes. Phase 3 was conducted from March up to June 2002 and consisted of two stages. In Stage 1 (March-May 2002) data were collected through questionnaires from 181 teachers that used ICT in their teaching in the 72 Greek primary schools, from 72 head teachers as well as from 43 district officers and 47 school counsellors of these schools. In addition, data were collected through interviews from a number of the above educators. In Stage 2 (June 2002) (see Section 4.6.7) the same sample of teachers was

[1] They used to work, on behalf of the University, at the schools where my pilot study was conducted, as teacher trainers in the use of computers and they used to visit them every week.

asked again a number of questions about the use of ICT in their teaching. In addition, the same sample of head teachers, district officers and school counsellors was asked a number of questions about the support of the uptake of ICT in their schools.

In the following sections the instruments of data collection, the choice of the sample, the distribution and the collection of data of Phase 3 are presented and discussed.

4.6.1 The Teacher Questionnaire

The Teacher Questionnaire shown in Appendix A1 was designed in order:

1) to collect basic data on the current level of ICT use in school by teachers (i.e. the frequency and the years of use of ICT in teaching, the type of use, the subjects and the age group of the classes that were using ICT) as well as to provide data on teachers' staff development (personal use of ICT, computer knowledge, in-service training, computer support),
2) to measure teachers' attitudes towards computers, and
3) to measure the effects of the attitudes toward the behaviour, subjective norm and perceived behavioural control on teachers' intention to engage in using ICT in their teaching during the next three months.

The questionnaire had three parts (see Table 4.3). Part 1 included eight sections (see column 3, including personal information, computer experience and knowledge, and the computer support by the head teacher, the district officer and the school counsellor. Part 2 included seven sections which were related to the Theory of Reasoned Action and Theory of Planned Behaviour, and Part 3 included 62 attitude towards computers items. The total questionnaire consisted of 381 items. The main sections of the Teacher Questionnaire are presented and discussed in the following sections.

4.6.1.1 Teacher's Questionnaire: Part 1

4.6.1.1.1 Personal information

The first section of the questionnaire collected the personal information of the respondent including the teachers' contact information such as name, telephone, e-mail etc in order to enable me to contact teachers in Stage 2 of this study in June 2002. The section also included questions about teachers' gender, age, qualifications and teaching experience.

Table 4.3 - Main sections of the Teacher Questionnaire.

PART	Section	Title of section	Type of information requested	Number of items
PART 1	1	Personal information	Name, sex, age, contact address/telephone/ e-mail, degree(s) and qualification(s), years of teaching experience, years as a teacher at this school, grade(s) of teaching, number of pupils in classroom.	13
	2	Computer experience and knowledge	Ability to use hardware and software, technical computer knowledge and the use of computers in teaching.	32
	3	Personal use of computers	Access to a computer, ownership, type of computer, frequency of use, number of years used, Internet uses.	24
	4	Use of computers in school	Frequency of use, number of years used.	30
	5	Using the Internet in teaching	Internet uses in teaching, frequency of using, number of years used, purposes of using Internet in teaching.	15
	6	Use of computers in subject teaching	Subjects in which computers were used	8
	7	Staff development training	Types and hours of courses attended, location of training.	25
	8	Computer support	Type of support by head teacher, district officer, school counsellor, other support received,	23
PART 2	1	Intention	Intention of using ICT.	3
	2	Attitude toward the behaviour	Teachers' evaluation of using ICT.	5
	3	Subjective norm	Social support for engaging in ICT use.	5
	4	Perceived behavioural control	Perceptions of individual control to use ICT.	4
	5	Behavioural beliefs (behavioural belief strength and outcome evaluation)	Advantages and disadvantages of using ICT.	68
	6	Normative beliefs (normative belief strength and motivation to comply)	Individuals or groups who approve or disapprove the use of ICT.	24
	7	Control beliefs (control belief strength and control belief power)	Factors or circumstances, which make the use of ICT more difficult or easier.	40
PART 3	1	Attitudes towards computers	1) Computer anxiety, 2) computer confidence, 3) computer usefulness, 4) computer liking/enthusiasm/enjoyment, 5) attitudes towards email, 6) educational impact, 7) social impact, and 8) training needs.	62
			Total number of items	**381**

One of the objectives of this study was to investigate the influence of the above demographic characteristics on teachers' attitudes towards computers. For example, as far as age is concerned, previous studies have found that older people hold more negative attitudes towards computers than younger age groups (e.g. Anderson, 1981; Dyck and Smither, 1994).

As far as gender is concerned, earlier studies have found different findings (see Whitley, 1997, for a meta-analysis). On the one hand, there are studies which show that males have more positive attitudes than females (see for example Anderson et al., 1979; Anderson 1987; Colley et al., 1994; Brosnan and Lee, 1998; Durndell and Haag, 2002; Tsai et al., 2001).

On the other hand, the findings of other studies revealed that females had more positive attitudes than males (e.g. Siann et al., 1990), whereas other studies found negligible differences (see for example Scott and Rockwell, 1997; Shapka and Ferrari, 2003). According to Shashaani and Khalili (2001), these gender differences in attitudes exist because "men and women confront computers in different ways and with different perceptions, based on social expectations from significant others including parents, teachers, and peer groups" (pp. 365-366).

Previous studies have shown that the teaching experience of teachers may have an effect on their attitudes towards computers (Martin and Lundstrom, 1988; McCoy and Haggard, 1989, in Grunberg and Summers 1992). Therefore, Part 1 collected information about the teaching and computer experiences of the teachers. This section also included questions relating to the age group of the classes and the number of pupils using ICT, as well as the number of pupils in these classes.

4.6.1.1.2 Computer knowledge

As we have seen in Chapter 2, the ICT knowledge and skills of teachers is one of the factors influencing the integration of ICT in teaching (see for example Pelgrum and Plomp, 1991; Pelgrum, 2001). Therefore, in this study, several questions were asked to elicit the teachers' perceptions of their basic ICT knowledge and skills. The questionnaire included a self rating scale consisting of 32 items about ICT knowledge and skills, which were identified from the Greek Ministry of Education's initial ICT training programme for all educators' in primary and secondary education (Greek

Ministry of Education, 2000). The computer knowledge section also includes questions used by previous studies, which had used questionnaires to measure the knowledge and skills of teachers in ICT (Pelgrum and Plomp, 1991; Preston et al., 2000, Cox, 1997).

This section of the questionnaire consisted of four categories of questions and items. The first category included two general questions. The first question referred to the knowledge concerning computers and was measured on a 5-point scale (1=none, 2=a little, 3=average, 4=quite a lot, 5=a lot). The second general question referred to the knowledge of computer program use and was measured also on a 5-point scale (1=no good, 2=weak, 3=average, 4=quite good, 5=very good). These questions were derived from the questionnaire of the study conducted by Cox (1997), "The effects of Information Technology on Students' Motivation" completed by 442 students.

The second category included 10 items that referred to knowledge concerning computers (i.e "I know the difference between 'RAM' and 'ROM'). These items were taken from the questionnaire used in the study by Pelgrum and Plomp (1991) which had been administered to teachers in 22 educational systems. According to Pelgrum and Plomp (1991), the validity of these items was tested in a pilot study in England and the Federal Republic of Germany and high correlations were found between the items. In the present study, in order to avoid neutral responses, the 5-point Likert Scale used in the above two general questions was modified to a 4-point scale (1=none, 2=a little, 3=quite a lot, 4=a lot). Teachers had to specify their level of responses to each item.

The third category included 10 items that referred to the respondents' ICT abilities (i.e. "I can download files from e-mail or the World Wide Web"). The majority of these items were used in the study of Preston et al., (2000). The fourth category included items that referred to the ability of using computers in teaching (i.e. "Using educational software with pupils in pairs or groups"). The items of the third and fourth categories were measured on a 4 point scale (1=not at all, 2=a little, 3=well, 4=very well) for the reason mentioned above.

4.6.1.1.3 Personal use of computers

Recent research of 2,558 teachers in England that was carried out by BECTA (Becta, 2001) found that teachers' personal access to ICT at home and mainly their personal ownership of a computer had a substantial impact on their teaching, as well as on their

skills. For instance, 94% of respondents reported that the personal ownership of a computer "had increased their confidence to use ICT to support teaching and learning substantially" (ibid. p. 4). In this study a section in the Teacher Questionnaire about personal use of computers at home was included to determine if this had influenced teachers' frequency of ICT use in their teaching, as well as their attitudes towards computers. These included questions on type of computers, use at home, how often they used computers and how long, as well as whether they use the Internet or had e-mail and how often they checked it.

4.6.1.1.4 Use of computers in school and using the Internet in teaching

In Section 4 and 5 of the Teacher's Questionnaire, teachers were asked a number of questions about ICT use in their teaching. In order to investigate the frequency of ICT use in teaching in the 72 Greek primary schools, teachers were asked to indicate their frequency of use for each of 15 forms of ICT in teaching in the last three months. These questions were also used in order to assess the teachers' past behaviour in ICT use as part of the TRA and TPB. These questions are presented and discussed in detail in Part 2 of the Teacher's Questionnaire (see Section 4.6.1.2.6 and Appendix A1).

Previous studies, for example Reinen and Plomp (1993), have shown that years of experience with computers is an important factor in the process of integrating computers in teaching. Therefore in this study, teachers were asked to indicate the number of years that they used each of 17 forms of ICT in their teaching. The hypothesis of this study was that the frequency of computer use in teaching is correlated with the number of years the teacher works with computers.

4.6.1.1.5 Use of computers in subject teaching

Teachers were asked several questions about the use of ICT in their teaching. Firstly, teachers were asked to indicate how often they used ICT in their teaching in the following subjects: mathematics, science, mother tongue, creative arts, religious studies, history, social studies, geography, ICT as separate lesson. Their answers were measured on a 5-point scale (1=none, 2=about an hour each month, 3=about an hour each week, 4=several hours a week, 5=every day). Secondly, teachers were asked to indicate the type of software that they used in the above subjects.

4.6.1.1.6 Staff development training

As we have seen in Chapter 2, professional development training plays an essential role in the integration of ICT in teaching (e.g. Rhodes and Cox, 1990; Pelgrum and Plomp, 1991; Preston et al., 2000). Therefore, in this section of the teacher's questionnaire a number of questions about ICT training were included in order to investigate if this had influenced the frequency of use of ICT in teaching as well as teachers' attitudes towards computers. More specifically, teachers were asked to indicate the type, length and location of the ICT course attended. The type of ICT training was identified in five different types: initial awareness course, short special course, advanced course, working conference, longer award bearing course. In order to investigate the length of ICT training, teachers were asked to indicate the number of hours of courses attended in four different locations of training (in my school, in university, LEA Centre, public and private institutes).

4.6.1.1.7 Computer support

Previous studies showed that the introduction and implementation of ICT by the teachers depended on the support and assistance provided by the education executives as far as acquisition of software and hardware is concerned as well as matters having to do with their training (e.g. Fullan, 1992; Pelgrum and Plomp 1991; 1993). Therefore, 18 questions were used in Section 8 of the Teacher's Questionnaire in order to find out the support provided to the teachers by the head teacher, the school counsellor and the district officer in the introduction and implementation of computers.

The questions in Section 8 referred to the support in hardware (e.g. "Support for the acquisition of hardware for teaching purposes"), software (e.g. "Upgrading applications package"), organisation/administration (e.g. "Technical assistance") and curriculum applications (e.g. "How to organize pupils in the classroom"). In these categories, teachers were asked to assess the support provided by the three executives above, assessing it on a five-point scale (1=none, 2=little, 3=average, 4=quite a lot, 5=a lot).

4.6.1.2 Teacher's Questionnaire: Part 2

4.6.1.2.1 The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

As we have seen in Section 4.2, one of the objectives of this study was to investigate the influence of a) attitude toward the behaviour, b) subjective norm c) and perceived

behavioural control on teachers' intention to engage in using ICT in their teaching during the three months following the survey. A number of questions according to the TRA and TPB were used in Part 2 of the Teacher's Questionnaire.

This part of the questionnaire was designed and constructed based on the methodology described by Ajzen and Fishbein (1980, p. 261) and Ajzen (2002). Additionally, a review of the literature, on studies having used the TRA[1] and the TPB[2], was carried out, in order to study the methodology of questionnaire design implemented in previous studies. Finally, as we have seen in Section 4.5.2.1, in order to construct the final version of this part of the questionnaire a pilot study was conducted (see Phase 2).

According to the TPB, "the behaviour of interest is defined in terms of its Target, Action, Context, and Time (TACT) elements" (Ajzen, 2002, p. 2). In the questionnaire of this study, "Using" is the action, "Information Communication Technology" (ICT) is the target, "in my teaching" is the context, and "during the next three months" is the time element. The final version of the questionnaire consisted of direct and indirect measures of the variables of the TPB. Direct measures included items measuring behaviour, intention, attitude toward the behaviour, subjective norm and perceived behavioural control. Indirect measures included behavioural beliefs and evaluation of outcome, normative beliefs and motivation to comply, control beliefs and power of the different control beliefs.

In each component of the TRA and TPB, the items which were used for the direct and indirect measures (except the behaviour items) were scored from 1 to 7 and averaged. This study used the 7-point scale because according to Ajzen, the format of this scale is based on work with the semantic differential which found 7 points to be optimal (see 2004, http://www-unix.oit.umass.edu/~aizen/). This scale has been used in numerous TPB studies with various samples and has been found to have generated high reliability coefficients (Cronbach's alpha) (see Armitage and Conner, 2001) The higher scores indicated a stronger intention, attitude toward the behaviour and perceived behavioural control to use ICT in teaching during the following three months. The final version of the questionnaire measured the constructs described in the following sections.

[1] See for example: Norwich and Duncan, 1990; Norwich and Jaeger, 1989; Crawley and Coe, 1990; Koballa, 1986; Koballa, 1988; Karahanna et al., 1999.
[2] See for example: Crawley, 1990; Crawley and Black, 1992; Haney et al., 1996; Randall, 1994; Chang, 1998; Astrom and Mangosi, 2000.

4.6.1.2.2 Intention

Three different 7-point scales were used to assess teachers' intentions to use ICT in their teaching during the following three months (extremely unlikely/extremely likely, definitely true/definitely false, strongly disagree/strongly agree). Most specifically, the three intentions scales were formulated as follows:

a) I intend to use ICT in my teaching during the next three months: (extremely unlikely/extremely likely).
b) I will use ICT in my teaching during the next three months: (definitely true/definitely false).
c) I plan to use ICT in my teaching during the next three months: (strongly agree/strongly disagree).

4.6.1.2.3 Attitudes towards the behaviour

The attitudes towards the behaviour were assessed using a semantic differential scale. Teachers were presented with the item: "For me using ICT in my teaching during the next three months is...". Five pairs of adjectives (harmful/beneficial, pleasant/unpleasant, good/bad, worthless/valuable, enjoyable/unenjoyable) were rated each on a 7-point scale.

4.6.1.2.4 Subjective norm

Five 7-point scales were also used to assess subjective norms. These scales were:

a) Most people who are important to me think that I should/I should not use ICT in my teaching during the next three months.
b) It is expected of me that I use ICT in my teaching during the next three months: (extremely likely/extremely unlikely).
c) The people in my life, whose opinions I value, would approve/disapprove my using ICT in my teaching during the next three months.
d) Most people who are important to me use ICT in their work place: (completely true/completely false).
e) The people in my life whose opinions I value use/do not use ICT in their work place.

4.6.1.2.5 Perceived behavioural control

Four 7-point adjective scales were used to measure perceived behavioural control. These scales were:

a) For me using ICT in my teaching during the next three months would be: very difficult/very easy.
b) If I wanted to, I could easily use ICT in my teaching during the next three months: definitely true/definitely false.
c) How much control do you believe you have over using ICT in your teaching during the next three months? no control/complete control.
d) It is mostly up to me whether or not I use ICT in my teaching during the next three months: strongly agree/strongly disagree.

4.6.1.2.6 Behaviour

In order to assess the predictors in the TRA and TPB, the questionnaire also inquired into the respondents' past behaviour by asking them how often they had used ICT in their teaching in the past three months (i.e. March-June 2002) (see Section 4.6.7). Fifteen forms of ICT were listed: Word processing, Spreadsheets, Databases, Desk-top publishing, Presentation software, Art/graphics software, Modelling, Measurement and control, Subject specific software, Multimedia Encyclopedias (CD-ROM), Music composition software, Logo, Simulations, Educational games and Utilities (calculator, calendar, etc.). The response alternatives were: (1=never), (2=about an hour each month), (3=about an hour each week), (4=several hours a week), and (5=more than an hour a day). This 5-point scale was used in most studies that investigate the use of ICT in teaching. For instance this scale was used by Preston et al., (2000) to measure teachers' frequency of ICT use in their teaching.

In order to develop indirect measures of the TRA and TPB, as we have seen in Section 4.5.2.1, a pilot study was conducted. The following behavioural, normative and control beliefs were initially derived from responses to open ended questions in pilot questionnaires (see Appendix E).

4.6.1.2.7 Behavioural beliefs

The items developed for behavioural beliefs were based on information from the pilot study (see Phase 2, Section 4.5.2.1) and many of them were adopted from items used in

a previous study (see Preston et al., 2000). More specifically 34 behavioural beliefs were identified from the pilot study. For example, some of these were: "enriching my pupils knowledge", "helping the weak pupils to improve", "helping pupils to find a job easier in future", "making the lessons more enjoyable", "restricting my role as a teacher", "helping school to implement other innovations" (see Teacher Questionnaire, on Appendix A1). For each of the 34 behavioural beliefs two items were designed, one a personal belief about the connection between the consequence and performance of the behaviour (behavioural belief strength) and one an evaluation of the consequence (outcome evaluation). According to Ajzen (2002), "the belief strengths and outcome evaluations for the different accessible beliefs provide substantive information about the attitudinal consideration that guide people's decisions to engage or not to engage in the behaviour under consideration" (ibid, p. 9). Participants rated the items on a 7-point scale ranging from 1 to 7 ("extremely unlikely" to "extremely likely" for the behavioural belief strength and "extremely bad" to "extremely good" for the outcome evaluation). For example: "Using ICT in my teaching during the next three months will enrich my pupils knowledge: extremely unlikely/extremely likely", (behavioural belief strength) "Enriching my pupils' knowledge is: extremely bad/extremely good" (outcome evaluation). The 34 items in behavioural belief strength and in outcome evaluation contained nine negative statements. These questionnaire items were the following: 8, 18, 19, 20, 23, 24, 27, 29, and 30 (see Teacher Questionnaire, Appendix A1).

4.6.1.2.8 Normative beliefs

Normative beliefs were related to 12 referents (i.e. persons/organisations). These were the following: "head teacher", "school counsellor", "district officer", "parents' association", "pupils", "colleagues", "Ministry of Education", "private computer companies", "Pedagogical Institute", "Universities", "local authorities (Municipality, Prefecture)", and the "Greek primary teachers' federation". For each of the above 12 referents two items were used, one about normative belief strength and the other about motivation to comply.

Responses were measured using a 7-point scale; for instance: Normative belief strength: "My head teacher thinks that I should/I should not use ICT in my teaching during the next three months". Motivation to comply: "Generally speaking, how much do you want to do what your head teacher thinks you should do? (not at all/very much).

4.6.1.2.9 Control beliefs

Twenty items measuring specific control beliefs about ICT use were developed based on the results of the pilot study (see Phase 2, Section 4.5.2.1). Many of these items were adopted from the study of Pelgrum and Plomp (1991). Some of the control beliefs were: "sufficient number of computers and peripherals"; "enough software for teaching purposes"; "technical assistance for operating and maintaining computers"; "adequate financial support"; "a small number of pupils in my class"; "enough computer time for my class"; "computer support from head teacher", "access to the Internet" and "sufficient training opportunities" (see Teacher Questionnaire, on Appendix A1).

Items concerning control beliefs about the facilitators and inhibitors for the behaviour were measured using a 7-point scale ranging from "strongly disagree" (1) to "strongly agree" (7). For example "I expect that a sufficient number of computers and peripherals (e.g. printer) will be available in my school during the next three months: strongly disagree/strongly agree". Items concerning the power of each control belief were measured on a 7-point scale ranging from "much more difficult" (1) to "much easier" (7). For instance "The availability of a sufficient number of computers and peripherals (e.g. printer) at my school during the next three months would make it much more difficult/much easier for me to use ICT in my teaching".

4.6.1.3 Teacher's Questionnaire: Part 3

4.6.1.3.1 Attitudes towards computers

In order to measure teachers' attitudes towards computers, 62 attitude items were used in Part 3 of the questionnaires in the main study. These items were identified in the pilot study (see Section 4.5.2.3) and were derived from previous studies that were presented in Table 4.1. The names of the attitudes' subscales that were used in the questionnaire are presented in Table 4.4 below. These subscales were discussed in detail in Chapter 3.

In order to measure educators' attitudes towards computers a 5-point Likert scale (Strongly Disagree to Strongly Agree) was used. The 5-point scale used in this study because according to Oppenheim (2000), the 5-point Likert scale has a number of advantages. One of these is the fact that "the greater range of answers permitted to respondents, is often higher than that of corresponding Thurstone scales; a reliability coefficient of .85 is often achieved" (ibid, p. 200). The Likert scale also has other advantages, which make it worth being used. Among those is that Likert scales "provide

more precise information about the respondent's degree of agreement or disagreement" and also that "it becomes possible to include items whose manifest content is not obviously related to the attitude in question, enabling subtler and deeper ramifications of an attitude to be explored" (ibid, p. 200).

Table 4.4 - Computer attitude subscales and the number of items that used in the main study.

Subscale	Number of items	Item numbers in the questionnaires
Computer Anxiety	12	3, 4, 13*, 16, 21*, 25*, 36, 43*, 49*, 57*, 61
Computer Confidence	5	17, 22, 45*, 51, 59*
Computer Usefulness	7	12, 24, 27, 28*, 30*, 48, 53
Computer Liking/Enthusiasm/ Enjoyment	12	1*, 2*, 6*, 9, 10, 14*, 19, 20, 32, 34*, 40, 55, 60
E-mail	4	26, 41, 54, 62
Educational Impact	10	5, 8, 23, 31, 35, 38, 44, 47, 52, 58
Social Impact	7	15*, 18*, 29*, 37*, 46*, 50*, 56*
Training needs	5	7, 11, 33, 39, 42
Total number of items	62	

*Note: *– These items have negative wording.*

In this study positively and negatively worded items were included in the 62 items (see Table 4.4). Teachers' were asked to read the 62 attitudes items, then circle the scale number that indicated the degree to which they either agreed or disagreed with the item. For example, for the item: "In-service training courses about computers should be made compulsory", the educator would then respond by circling either: 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree.

4.6.2 The Head Teacher Questionnaire

The head teacher questionnaire (see Appendix B1) was designed in order:

- to gather data on the current levels of ICT use in primary schools (i.e. number of teaching staff and pupils that used ICT for teaching purposes, how long their schools have been using ICT for administrative and teaching purposes, availability of hardware and software);
- to identify head teachers' computer using for personal and educational purposes (purposes of using, frequency of use, training, computer support and type of support, computer knowledge);
- to measure head teachers' attitudes towards computers;

- to measure the effects of attitude toward the behaviour, subjective norm and perceived behavioural control on head teachers' intention and behaviour to engage in supporting the uptake of ICT in their schools during the next three months.

The head teacher questionnaire had three parts (see Table 4.5). Part 1 included nine sections to collect personal information about the head teacher, his/her kind of computer use and frequency of using a computer at his/her home, his/her computer knowledge, his/her training on computers, the support he/she provides for the introduction and implementation of computers at school as well as information concerning hardware and software at school, the computer use for school administration. Part 2 included sections about head teachers' attitudes towards the behaviour, subjective norm, and perceived behavioural control. Part 3 referred to his/her attitudes towards computers.

As for the information collection by the head teachers about the above sections of the questionnaire, similar questions to those existing in the teacher questionnaire were used (see Section 4.6.1.1). These were Sections 1, 5, 6 and 7. The reasons for using these particular sections in the Head Teacher Questionnaire were mentioned in the relevant sections of the Teacher Questionnaire. For example, the data about the demographic information, the computer knowledge, the personal use of computers and the staff development training, were collected in order to investigate if these had influenced the attitudes of head teachers towards computers.

Moreover, there were new sections in the head teacher questionnaire. These and the reasons for use are discussed below. The main sections of the Head Teacher Questionnaire are presented and discussed in the following sections.

Table 4.5 - Main sections of the Head Teacher Questionnaire.

PART	Section	Title of section	Type of information requested	Number of items
PART 1	1	Personal information	Name, sex, age, name of the school, contact address/fax/telephone/e-mail address, degree(s) and qualification(s), years of teaching experience, years as a head teacher at this school.	10
	2	General information about your school	Characteristics of school (urban, rural etc.), number of teaching staff, number of pupils, area's characteristics in which pupils live, school's use of computers (years of use, type of use), number of teaching staff and pupils that used computers in their teaching, Internet school connection, school web site.	10
	3	Hardware and other equipment	Types of hardware, numbers of computers, location of hardware.	4
	4	Software	Type of software for teaching and administration.	20
	5	Computer experience and knowledge	Ability of using hardware and software, technical computer knowledge and the use of computers in teaching.	32
	6	Personal use of computers	Access to a computer, ownership, type of computer, frequency of use, number of years used, Internet uses.	24
	7	Staff development training	Types and hours of courses attended, location of training.	25
	8	Using computers for administration	Computer use, frequency and years of use.	3
	9	Computer support	Computer support and type of support, school's projects	21
PART 2	1	Intention	Intention to support the uptake of ICT.	3
	2	Attitude toward the behaviour	Head teachers' evaluation of supporting the uptake of ICT.	5
	3	Subjective norm	Social support for engaging in supporting the uptake of ICT.	3
	4	Perceived behavioural control	Perceptions of individual control to support the uptake of ICT.	4
	5	Behavioural beliefs (behavioural belief strength and outcome evaluation)	Advantages and disadvantages of supporting the uptake of ICT.	72
	6	Normative beliefs (normative belief strength and motivation to comply)	Individuals or groups who approve or disapprove supporting the uptake of ICT.	24
	7	Control beliefs (control belief strength and control belief power)	Factors or circumstances, which make supporting the uptake of ICT more difficult or easier.	40
PART 3	1	Attitudes towards computers	1) Computer anxiety, 2) computer confidence, 3) computer usefulness, 4) computer liking/enthusiasm/enjoyment, 5) attitudes towards email, 6) educational impact, 7) social impact, and 8) training needs.	62
			Total number of items	362

4.6.2.1 Head Teacher's Questionnaire: Part 1

4.6.2.1.1 General information about your school

Section 2, as shown in Table 4.5, included questions aimed at collecting information about the type of school, its geographical position, the number of teaching staff, the number of pupils and the area where they live. In addition, it aimed to collect information about the type and the years of computer use in school and finally, whether the school had access to the Internet and had created a website. Previous studies showed that many of the above factors affect the uptake of ICT. Jo (1996), for example, in his study concerning the computer use in Korean schools, found that the schools located in urban areas possessed more computers compared to those in rural areas, while those in rural areas possessed more software than those in urban areas. Moreover, in an earlier study it was found that the teachers of urban schools had broader knowledge about computers in relation to the teachers of rural areas (Mitchell, 1985, in Dupagne and Krendl, 1992). Section 2 was to find out the kinds of ICT use for administration work, such as correspondence, time-tabling, worksheets, assessment and pupils records.

4.6.2.1.2 Hardware and other equipment

Previous research, for example Pelgrum (2001) and Pelgrum and Anderson (2001), found that the availability and quality of hardware was a major condition for integrating ICT in schools (see Chapter 2, Section 2.3.3.5). More specifically, with regard to hardware among the factors that influence the integration of ICT in schools are the number of computers and peripherals that are available for administrative and teaching purposes, the type and the age of computers, their availability in multimedia facilities, their location, their connection to an internal network as well as to the Internet. Therefore, in this study a section is included in the head teacher questionnaire about the availability of hardware and other equipment for teaching and administrative purposes (e.g. number, types, age of computers, location, and connection to the Internet).

4.6.2.1.3 Software

As we have seen in Chapter 2 (see Section 2.3.3.5), the uptake of ICT in schools is not only affected by the availability of hardware for teaching purposes but also by the quality and quantity of software. In order to investigate the availability of software in the 72 Greek primary schools, their head teachers were asked to indicate the type of

software that was available for teaching and administrative purposes (see Head Teacher Questionnaire, on Appendix B1).

4.6.2.1.4 Using computers for administration

Section 8 was designed to investigate whether and how often head teachers made use of computers in school administration. It was hypothesised that computer use by the head teachers in this study might affect their attitudes towards computers.

4.6.2.1.5 Computer support

In Section 9, the questions devised aimed to investigate the support provided by the head teachers as far as the introduction and implementation of computers in their schools is concerned. Head teachers were mainly asked to indicate what kind of support they provide in matters relating to hardware, software, organisation/administration and curriculum applications assessing it as (1=none), (2=little), (3=average), (4=quite a lot) (5=a lot). Earlier studies have proved that the assistance and support provided by education executives, including head teachers, in the aforementioned matters is very significant in the uptake of ICT (Akker et al., 1992). These questions were also used in order to assess the head teachers' past behaviour in ICT support as part of the TRA and TPB in Stage 2 (June 2002) (see Section 4.6.7). These questions are presented and discussed in detail in the second part of the Head Teacher's Questionnaire (see Section 4.6.2.2.6). Finally, in Section 9, the head teachers were asked to mention whether their school had participated in projects aimed at helping pupils and teachers with using computers.

4.6.2.2 Head Teacher's Questionnaire: Part 2

Part 2 of the head teacher's questionnaire was designed in order to determine the factors which influence the intention and behaviour of head teachers to support the uptake of ICT in their school. The questions that used to measure the TPB were similar to questions used in Teachers' Questionnaire (see Section 4.6.1.2).

4.6.2.2.1 The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

As already mentioned in the Teacher's Questionnaire, in Section 4.6.1.2.1, according to the TRA and TPB, the behaviour of interest must be carefully specified in terms of its action, target, context, and time elements. In the head teacher questionnaire,

"Supporting" is the action, "the uptake of Information Communication Technology" is the target, "in my school" is the context, "during the next three months" is the time element. More specifically, the behaviour "Supporting the uptake of ICT in my school during the next three months" was used in order to investigate the effect of head teachers' attitudes as far as the support for the uptake of ICT is concerned. It also investigated the effect of their attitudes on the persons who possibly approve or disapprove of the head teachers' support for ICT, as well as the factors which facilitate or prevent head teachers from supporting the uptake of ICT in their schools.

The design of the questionnaire was made, as in the Teacher's Questionnaire (see Section 4.6.1.2) according to the TRA (Ajzen and Fishbein, 1980) and the TPB (Ajzen, 2002) (see Chapter 3, Sections 3.5.1 and 3.5.3). In addition, in order to develop the final version of the questionnaire a pilot study was conducted in Phase 2 (see Section 4.5.2.1). The intention, the subjective norm and the perceived behavioural control were measured directly using the same scales used in the Teacher's Questionnaire (see Section 4.6.1.2).

4.6.2.2.2 Intention

The intention of head teachers to support the uptake of ICT in their schools was measured using three 7-point scales (extremely unlikely/extremely likely, definitely true/definitely false, strongly disagree/strongly agree). For example one of the intention scale was as follows: "I intend to support the uptake of ICT in my school during the next three months: (extremely unlikely/extremely likely)".

4.6.2.2.3 Attitude toward the behaviour

Head teachers' attitudes towards the behaviour was assessed using a semantic differential scale. Head teachers were presented with the item: "For me to support the uptake of ICT in my school during the next three months is...". Five pairs of adjectives were rated each on a 7-point scale (harmful/beneficial, pleasant/unpleasant, good/bad, worthless/valuable, enjoyable/unenjoyable).

4.6.2.2.4 Subjective norm

Five different 7-point scales were used in order to measure head teachers' subjectives norms (I should/I should not, extremely likely/extremely unlikely, approve/disapprove, completely true/completely false, support/do not support). For example the first

subjective norm scale of the questionnaire was formulated as follow. "It is expected of me that (I should/I should not support) the uptake of ICT in my school during the next three months".

4.6.2.2.5 Perceived behavioural control

To assess head teachers' perceived behavioural control four different 7-point scales were used. One of the four perceived behavioural control scale was the following. "For me to support the uptake of ICT in my school during the next three months would be (impossible/possible).

4.6.2.2.6 Behaviour

In order to assess the behaviour using the same TRA and TPB, as for the teachers, head teachers were asked to indicate the kind of support they provided to their schools for the development in the use of computers in education in the previous three months (i.e. March-June 2002, see Section 4.6.7). Twenty kinds of support were listed which were related to hardware (i.e. "Support for acquisition of hardware for teaching purposes"), software (i.e. "Support for acquisition of new software for teaching purposes"), organization/administration (i.e. "Technical assistance to teachers") and curriculum applications (i.e. "How teachers should use computers in specific subjects"). The response alternatives were (1=none), (2=little), (3=average), (4=quite a lot), (5=a lot).

As we have seen in Section 4.5.2.1, in order to develop indirect measures a pilot study was conducted in Phase 2. The indirect measures included 36 behavioural beliefs items, 12 normative belief items and 20 control belief items. These beliefs items are discussed below.

4.6.2.2.7 Behavioural beliefs

As mentioned above, 36 behavioural beliefs were identified in the pilot study conducted in Phase 2 (see Section 4.5.2.1). From these, 34 beliefs were similar to the behavioural beliefs used in the Teacher Questionnaire (see Section 4.6.1.2.7). Two additional behavioural beliefs that were identified were the following: a) "Supporting the uptake of ICT in my school during the next three months will give me more prestige" and b) "Supporting the uptake of ICT in my school during the next three months will cause me

stress". The 36 behavioural beliefs were measured using the same scales used in the Teacher's Questionnaire (see Section 4.6.1.2.7).

4.6.2.2.8 Normative beliefs

The pilot study had identified twelve normative referents (i.e. persons/organisations) (see Head Teacher Questionnaire, Appendix B1). With respect to each of these twelve referents, two items were used. The first item was used in order to assess the normative belief strength (i.e. "Head teachers of other schools think that I should/I should not support the uptake of ICT in my school during the next three months") and the second item to assess the motivation to comply (i.e. "Generally speaking, how much do you want to do what head teachers of other schools think you should do? not at all/very much").

4.6.2.2.9 Control beliefs

Twenty items were included to assess indirectly the control beliefs, in addition to the four items that assessed perceived behavioural control directly (see Section 4.6.2.2.5). These control beliefs were similar with those that were used in the Teacher's Questionnaire and were measured in a similar way to that mentioned in Section 4.6.1.2.9.

The next section presents and discusses the District Officer and the School Counsellor Questionnaire.

4.6.3 The District Officer and School Counsellor Questionnaire

The questionnaires for the district officers and schools counsellors (see Appendices C1 and D1) were designed in order:

- to gather general information about their schools (number of schools, number of teaching staff, geographical characteristics) as well as data for the level of ICT use in their schools (numbers of schools using computers, purposes of use, computer support and type of support, using computers for administration, problems in using computers in teaching),
- to identify district officers and school counsellors using computers for personal and administrative purposes (purposes of use, frequency of use, number of years used, Internet uses),

- to measure the effects of the attitude towards the behaviour, subjective norm and perceived behavioural control on district officers' and school counsellors' intention and behaviour to engage in supporting the uptake of ICT in their schools during the following three months.

The questionnaires had three parts (see Tables 4.6 and 4.7). Part 1 and 3 of the questionnaires consisted of questions already discussed in the Teacher's and Head Teacher's Questionnaires (see Section 4.6.1 and Section 4.6.2).

4.6.3.1 The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

The TRA and TPB were also used to examine the influence of attitude towards the behaviour, subjective norm and perceived behavioural control, on district officers' and school counsellors' intentions to support the uptake of ICT in schools of their district during the next three months. The content of the questionnaire, which was designed to investigate the intention and behaviour of district officers and school counsellors to support the uptake of ICT in their schools, was the same as the Head Teacher's Questionnaire (see Section 4.6.2.2). The reasons for using particular sections in the district officer and school counsellor questionnaire were mentioned in the relevant sections of the Head Teacher's Questionnaire. The only difference to be found between the questionnaire for the district officers as well as school counsellors and the one for head teachers is the target of behaviour: "in the schools of my district".

Table 4.6 - Main sections of the District Officer Questionnaire.

PART	Section	Title of section	Type of information requested	Number of items
PART 1	1	Personal information	Name, sex, age, name of the school, contact address/fax/telephone/e-mail address, degree(s) and qualification(s), years of teaching experience, years as a district officer at this district.	10
	2	General information about your district	Characteristics of schools (urban, rural etc.), number of schools, number of teaching staff, number of pupils in the schools, school's use of computers, Internet district office connection, district office web site.	8
	3	Computer experience and knowledge	Ability to use hardware and software, technical computer knowledge and the use of computers in teaching.	32
	4	Personal use of computers	Access to a computer, ownership, type of computer, frequency of use, number of years used, Internet uses.	24
	5	Staff development training	Types and hours of courses attended, location of training.	25
	6	Using computers for administration	Computer use, frequency and years of use.	3
	7	Computer support	Computer support and type of support, district's projects, training programmes.	22
PART 2	1	Intention	Intention to support the uptake of ICT.	3
	2	Attitude toward the behaviour	District officers' evaluation of supporting the uptake of ICT.	5
	3	Subjective norm	Social support for engaging in supporting the uptake of ICT.	3
	4	Perceived behavioural control	Perceptions of individual control to support the uptake of ICT.	4
	5	Behavioural beliefs (behavioural belief strength and outcome evaluation)	Advantages and disadvantages of supporting the uptake of ICT.	72
	6	Normative beliefs (normative belief strength and motivation to comply)	Individuals or groups who approve or disapprove supporting the uptake of ICT.	24
	7	Control beliefs (control belief strength and control belief power)	Factors or circumstances, which make supporting the uptake of ICT more difficult or easier.	40
PART 3	1	Attitudes towards computers	1) Computer anxiety, 2) computer confidence, 3) computer usefulness, 4) computer liking/enthusiasm/enjoyment, 5) attitudes towards email, 6) educational impact, 7) social impact, and 8) training needs.	62
			Total number of items	337

Table 4.7 - Main sections of the School Counsellor Questionnaire.

PART	Section	Title of section	Type of information requested	Number of items
PART 1	1	Personal information	Name, sex, age, name of the school, contact address/fax/telephone/e-mail address, degree(s) and qualification(s), years of teaching experience, years as a district officer at this district.	10
	2	General information about your district	Characteristics of schools (urban, rural etc.), number of schools, number of teaching staff, number of pupils in the schools, school's use of computers, Internet district office connection, district office web site.	8
	3	Computer experience and knowledge	Ability to use hardware and software, technical computer knowledge and the use of computers in teaching.	32
	4	Personal use of computers	Access to a computer, ownership, type of computer, frequency of use, number of years used, Internet uses.	24
	5	Staff development training	Types and hours of courses attended, location of training.	25
	6	Using computers for administration	Computer use, frequency and years of use.	3
	7	Computer support	Computer support and type of support, district's projects, training programmes.	22
PART 2	1	Intention	Intention to support the uptake of ICT.	3
	2	Attitude toward the behaviour	District officers' evaluation of supporting the uptake of ICT.	5
	3	Subjective norm	Social support for engaging in supporting the uptake of ICT.	3
	4	Perceived behavioural control	Perceptions of individual control to support the uptake of ICT.	4
	5	Behavioural beliefs (behavioural belief strength and outcome evaluation)	Advantages and disadvantages of supporting the uptake of ICT.	72
	6	Normative beliefs (normative belief strength and motivation to comply)	Individuals or groups who approve or disapprove supporting the uptake of ICT.	24
	7	Control beliefs (control belief strength and control belief power)	Factors or circumstances, which make supporting the uptake of ICT more difficult or easier.	40
PART 3	1	Attitudes towards computers	1) Computer anxiety, 2) computer confidence, 3) computer usefulness, 4) computer liking/enthusiasm/enjoyment, 5) attitudes towards email, 6) educational impact, 7) social impact, and 8) training needs.	62
			Total number of items	337

4.6.4 The interviews

Sixteen semi-structured interviews with educators (six with teachers, four with head teachers, three with district officers and three with school counsellors) were conducted over Stage 1 (March-May 2002) of Phase 3, in order to elicit information about the uptake of ICT in their schools, as well as their attitudes towards computers.

According to Cohen et al., (2000), in semi-structured interviews the questions are normally specified, but the interviewer is free to probe, flexible in asking additional and follow up questions as and when unexpected and interesting information is revealed during the interview. The interviewer seeks clarification and elaboration on the answers given. This enables the interviewer to have greater discretion to probe beyond the answers and thus enter into a dialogue with the interviewee, offering invitations for expansion on issues raised (see Cohen et al., 2000).

Four interview schedules were drawn up; one for teachers (Schedule A, see Appendix F), one for head teachers (Schedule B, see Appendix F), one for district officers (Schedule C, see Appendix F) and one for school counsellors (Schedule D, see Appendix F). Interviews were 15 to 25 minutes in duration and were conducted in the participant's work place. All interviews were conducted in Greek and were audio recorded. As it was mentioned in Section 4.3.1.2 interview data were mainly collected to verify or explain the survey data. However, as is shown in chapters 6, 7 and 8 there was extensive and sufficient evidence from the survey data not to require analyzing the interviews' data.

4.6.5 Validity and reliability of questionnaires measures

One of the objectives of the analysis of data (see Section 4.7.6) was to provide evidence for the validity and reliability of the developed scales and subscales used in Teacher, Head Teacher, District Officer and School Counsellor Questionnaire, including the attitudes towards computers scale, the knowledge about computers scale and the TRA and TPB scales. This objective was examined with content validity of the questionnaire and the Cronbach's coefficient alpha.

4.6.5.1 Content validity

Content validity of the questionnaire was established through the adoption of validated instruments by other researchers in the literature. For example in Part 1 of the questionnaires the section about the frequency of ICT at home (see for example, The Teacher Questionnaire, in Appendix A1) as well as in work place was derived by the questionnaire used in previous study by Preston, et al., (2000). In addition, the attitudes items towards computers that used in this study were derived by previous education studies and reported high validity and reliability (see Chapter 3, Section 3.4).

Furthermore, experts in the seminars of the King's College London and a number of teachers and head teachers studied the questionnaires and evaluated the level of relevance, clearness and conciseness. A number of suggestions were made concerning the wording of several items and the overall structure of the questionnaire, and these suggestions were incorporated into the revised versions.

Finally, the questionnaires pilot-tested with six head teachers, five district officers, five school counsellors and 20 teachers during the pilot study. The purpose of the pilot study was to gain additional feedback about the questionnaire instrument. Respondents were asked to provide any comments on the questionnaire content and structure. Overall, the respondents indicated that the questionnaires were relatively clear and easy to compete.

Regarding the content validity items of the TRA and TPB the following steps were conducted. Firstly, items concerning behaviour, intention, attitude toward the behaviour, subjective norm, and perceived behavioural control were based on the original Theory of Reasoned Action and Theory of Planned Behaviour. Secondly, a pilot study was conducted with teachers, head teachers, district officers and school counsellors in order to elicit their behavioural, normative and control beliefs. These beliefs were used to develop the indirect measures for the a) behavioural belief strength and outcome evaluation, b) normative belief strength and motivation to comply and c) control belief strength and control belief power, used in the main study. This procedure is consistent with the recommendations of Ajzen (2002).

4.6.5.2 Internal consistency reliability

The reliability was examined with Cronbach's coefficient alpha (see Section 4.7.6)[1]. Tables 4.8-4.12, below present the alpha coefficients for each scale and subscale of the four questionnaires and show on average high levels of reliability, using the results for the main study (see Chapters 6-8).

Table 4.8 shows that the alpha coefficients for each subscale and the total scale for teachers, head teachers, district officers and school counsellors knowledge about computers were all above .90 indicating very high levels of internal consistency.

Table 4.8 – Internal consistency reliabilities for knowledge about computers scales.

Knowledge	Number of items	Teachers (n=181)	Head teachers (n=72)	District officers (n=43)	School counsellors (n=47)
Knowledge concerning computers	10	.94	.96	.95	.95
ICT abilities	10	.94	.99	.97	.97
Ability of using computers in teaching	10	.94			
Total	30	.97			

Cronbach's alpha coefficients for the ICT personal use scale, in Table 4.9 ranged between .74 and .82. These alpha coefficients show that the nine items of personal ICT use were relative high consistent. In addition the Cronbach's alpha for the items of teachers ICT use was also relative high (.85) (non-presented in the table).

Table 4.9 - Internal consistency reliabilities for frequency of ICT at home scales.

Number of items	Teachers (n=143)	Head teachers (n=39)	District officers (n=19)	School counsellors (n=19)
9	.78	.82	.79	.74

Table 4.10 shows the Cronbach's coefficient alpha for each of the eight attitudes subscales and the overall scale as a whole. The alpha coefficients for all total scales were significantly very high. For teachers and head teachers the alpha was .97, for district officers the alpha was .96, and for school counsellors the alpha was .94. However, the alpha coefficients in district officers' and school counsellors' subscales were low.

[1] The 0.70 alpha is considered as sufficient level to determine reliability of scales as is mentioned in Section 4.7.6 later.

This poor internal consistency of these subscales may be due to the small sample (e.g. 47 school counsellors). In addition, this may be because the questionnaire was translated into the Greek language or the wording of those statements needed further modification.

Table 4.10 - Internal consistency reliabilities for attitudes towards computers scales.

Attitudes categories	Number of items	Teachers (n=181)	Head teachers (n=72)	District officers (n=43)	School counsellors (n=47)
Anxiety	12	.91	.88	.87	.83
Confidence	5	.81	.80	.73	**.60**
Usefulness	7	.81	.85	.81	.69
Liking	12	.89	.86	.90	.89
E-mail	4	.94	.89	.94	.89
Educational impact	10	.88	.88	.85	**.62**
Social impact	7	.81	.70	.74	**.50**
Training need	5	**.53**	.82	**.47**	**.57**
Whole scale	62	.97	.97	.96	.94

Table 4.11 presents the results with regard to the reliability analyses of the Theory of Reasoned Action and Theory of Planned Behaviour measures. The majority of Cronbach's alpha ranged from .74 to 97, which is very satisfactory. Nevertheless, the alpha of perceived behavioural control in school counsellors' sample was relative low (.65).

Table 4.11 - Internal consistency reliabilities for the TRA and TPB scales.

	Number of items	Teachers (n=181)	Head teachers (n=72)	District officers (n=43)	School counsellors (n=47)
Intention	3	.86	.94	.85	.94
Attitudes towards behaviour	5	.92	.90	.79	.87
Subjective norm	5	.79	.91	.83	.85
Perceived Behavioural Control	4	.79	.80	.74	**.65**
Belief-Based Attitude (Behavioural belief strength)	(34-36)	.91	.91	.91	.87
Belief-Based Attitude (Outcome evaluation)	(34-36)	.88	.79	.92	.89
Belief-Based Subjective Norm (Normative belief strength)	12	.89	.88	.80	.89
Belief-Based Subjective Norm (Motivation to comply)	12	.90	.89	.84	.87
Belief-Based Perceived Behaviour Control (Control belief strength)	20	.86	.91	.93	.94
Belief-Based Perceived Behaviour Control (Control belief power)	20	.97	.96	.94	.96

Finally, as can be seen from the alphas presented in the Table 4.12, all the alphas shows high internal consistency for each of the four computer support (see Section 4.6.2.2.6) subscales (range=.84-.98) and its total scales (range=.90-.95). The highest alpha for the total scale was obtained for head teachers' scale (.95), followed by the district officers' scale (.92).

Table 4.12 - Internal consistency reliabilities for the computer support scales.

Behaviour (computer support)	Number of items	Head teachers (n=72)	District officers (n=43)	School counsellors (n=47)
Hardware	4	.88	.86	.96
Software	2	.85	.95	.92
Organisation administration	10	.92	.84	.84
Curriculum applications	4	.94	.98	.93
Total		.95	.92	.90

4.6.6 The sample of the main study

In order to investigate the objectives of this study (see Section 4.2) data were collected from four main categories of respondents of 72 Greek primary schools which used ICT for teaching and administrative purposes. One hundred eighty one (181) were teachers who used ICT in their teaching, 72 were head teachers, 43 district officers and 47 school counsellors of these schools. Table 5.1 in Chapter 5 presents the distribution of the sample by district officers and school.

The criteria selection of the schools were:

- Hardware and software had to be available in schools for teaching and administrative purposes.
- ICT had to be available for teachers and pupils to use in teaching.
- ICT had to have been available at the schools for at least two years. It was felt that this was a reasonable period during which ICT could be established as a part of a school's culture.
- Head teachers', district officers' and school counsellors' had been in schools since the previous school year (2000-2001) and intended to be there until the end of school year 2001-2002.

In order to identify the schools that had to meet the above criteria, information was collected by three different stages. In the first stage, information about the number of primary schools had and used computers was collected from the Greek Ministry of Education and the Pedagogical Institute of Greece. In the second stage the documents of various programmes and projects that had introduced and implemented ICT in Greek schools were reviewed. In the third stage, I visited the web sites of many schools in order to identify whether they had used computers for teaching purposes.

According the information collected from the above three stages, the primary schools that had computers in school year 2001-2002 were approximately 150. Computers in teaching used 125 schools. From these schools, 72 participated in this study. The remaining 53 schools refused to participate for reasons that are discussed in the next section.

4.6.7 The distribution of questionnaires in the main study

A total of 343 teachers, head teachers, district officers and school counsellors participated in this study. The data from the questionnaires were collected in a longitudinal design. Questionnaires (see Appendices A2-D2) were distributed in Greek language to 235 teachers, 89 head teachers, 51 district officers and 58 school counsellors of 89 Greek primary schools that used ICT for teaching and administrative purposes in March 2002 (Stage 1) and in June 2002 (Stage 2) a second questionnaire was given to those who had completed and returned the first questionnaire.

First of all, at the end of January, one month before Stage 1 (March 2002), an introductory letter was sent to 125 schools, informing head teachers, teachers, district officers and school counsellors that the survey was to take place and asking for their co-operation. In addition, a number of schools were approached either by e-mail or by phone/fax. Twenty seven (27) schools refused to participate for different reasons such as the teachers were too busy. Furthermore, ten schools gave no reason and three schools did not answer. This left 89 schools participating in the present study.

The distribution and collection of the questionnaires in Stage 1 was conducted with three different distribution methods. Firstly, in order to achieve the best response I administered the questionnaire to each possible participant individually, hand to hand.

This method ensured high response rate, accurate sampling, while minimising interviewer bias and enhancing the benefit of personal contact (see Oppenheim, 2000).

In March 2002, I visited with two colleagues from the University of Athens, 50 of the schools of this study. All participants were informed about the general objectives of the questionnaires, and that their answers would be used in this research, their identity would not be revealed at any time, and I would consider the information confidential. Furthermore, they were instructed that they could ask questions before or during the completion of the questionnaire. Head teachers and teachers completed the questionnaire in waiting room, or in head teacher's office during a scheduled no teaching time and returned it to me or to my colleagues. Then, questionnaires were checked by me or my two colleagues to ensure that all questions were answered and marked clearly. However there were participants that did not return the questionnaire in the same day, because they did not have time to complete it. They completed it another day and returned it by post.

The questionnaire took about 20-25 minutes to complete. Administration and collection of the questionnaire from each school required approximately one to three hours. Table 4.13 presents a summary of the distribution of the questionnaires and the responses of these schools. As we can see, the overall response rate for this measurement was 100% (N=185).

Table 4.13 - Distribution of the questionnaires and responses.

	Questionnaires given	Responses	Completed questionnaires
Head teachers	50	50	50
Teachers	135	135	135
Total	185	185	185

Secondly, questionnaire packets were mailed (on March 2, 2002) to the remaining 39 primary schools. Each packet consisted of six questionnaires (one for the head teacher and five for the teachers) and a cover letter. The cover letter asked principals to distribute questionnaires to teachers that used ICT in their teaching. Reminder letters and copies of the questionnaires were sent to those schools who had not returned their questionnaires by 20 March 2002. In addition, in some schools reminder telephone calls were made or e-mails were sent. By the second week of April, questionnaires from 28 schools had been received. Twenty six respondents (seven head teachers and 19

teachers) had no data or had many missing data; therefore only 68 respondents were included in the statistical analyses. Table 4.14, presents the overall response rate for the second measurement.

Table 4.14 - Distribution of the head teachers' and teachers' questionnaires and responses.

	Questionnaires given	Responses	Completed questionnaires
Head teachers	39	28	22
Teachers	More than 100	65	46
Total		93	68

Thirdly, the District Officer Questionnaire and School Counsellor Questionnaire were passed to district officers and school counsellors through two administrators of the Greek Ministry of Education. These two administrators were selected because, due to their positions, they had frequent and direct contact with all district officers and school counsellors of Greece. Therefore, my cooperation with my colleagues achieved a very high response rate from the district officers and school counsellors. With the assistance of the administrators of the Greek Ministry of Education, questionnaires were delivered to district officers and school counsellors of 89 schools. Each respondent was asked to return the completed questionnaire to the office of the two administrators, whom I collected the questionnaires from, at a later time. Table 4.15 presents the response rate of these questionnaires. As we can see all distributed questionnaires were returned. However five questionnaires of district officers and eight of school counsellors were excluded because their head teachers and teachers' questionnaires had missing data[1] (see Table 4.15).

Table 4.15 - Distribution of the district officers' and school counsellors' questionnaires and responses.

	Questionnaires given	Responses	Completed questionnaires
District officers	51	48	48
School counsellors	58	55	55
Total	109	103	103

Three months later, in the first week of June 2002 (Stage 2), a second questionnaire was sent to all educators participated in the earlier survey (181 teachers, 72, head teachers, 43

[1] The purpose of this study was to analyse data only from schools that head teacher, teachers, district officer and school counsellor completed and returned the questionnaires.

district officers and 47 school counsellors). This questionnaire was only two pages (i.e. personal information and questions about behaviour) and was sent and returned either by mail, either by e-mail or fax. More specifically, teachers were asked how often they used ICT in their teaching (see Section 4.6.1.2.6) in the previous three months (i.e. March-June 2002) and head teachers', district officers' and school counsellors' were asked whether they supported the uptake of ICT in their schools (see Section 4.6.2.1.5). In addition many questionnaires were completed by phone. The distribution and collection of the questionnaires in this stage of measurement was also conducted with the assistance of my colleagues in the University of Athens as well as of two administrators of the Greek Ministry of Education. Table 4.16, presents the response rate for Stage 2.

Table 4.16 - Distribution of the head teachers', teachers', district officers' and school counsellors' questionnaires and responses.

	Questionnaires given	Responses	Completed questionnaires
Head teachers	72	72	72
Teachers	181	175	175
District officers	43	43	43
School counsellors	47	47	47
Total	343	334	334

4.7 PHASE 4: THE CODING AND ANALYSIS OF DATA

The aim of Phase 4 (July 2002-January 2004) was to code and to analyse the data of the study. In this phase the following steps were conducted. First of all, the software of the data entry and analysis was identified. Secondly, the data was reviewed for completeness. In addition, the coding data was conducted. Finally the third step was the analysis of data.

4.7.1 Software selection

In order to code and analyse the data of this study the Statistical Package for Social Science (SPSS) for Windows (version 12) was used. SPSS is a widely used data analysis package, which was designed with particular emphasis on survey analysis. More specifically, it is a statistical software package that provides a number of tools needed for the analytical process-planning, data collection, data access and management, analysis, reporting and deployment (see: www.spss.com). Some of the functionalities of

SPSS are: data examination, descriptive statistics, reliability tests, correlation, t-tests, ANOVA, and regression analyses.

4.7.2 Data checking and coding

Four files were created in order to enter the data of this study. These were labelled "teachers.sav", "headteachers.sav", "district.sav" and "counsellors.sav". Then, the first step of data entry was the process of coding the questionnaires. Each questionnaire had a specific code and each question was labeled with a variable name. Any missing values in the questions were coded as "99". Then, the data were checked for out of range responses using the frequency distribution test of the SPPS.

4.7.3 Part 1 of the questionnaires

4.7.3.1 Closed questions

Each of the questions was coded with a numeric value before it was entered on to the computer. For example, each of the following dichotomous response choices were scored "1" and "2" respectively: "YES-NO", "Male-Female". Questions with more than two response categories were given a value for each point. For instance, age: "under 25", "26-30", "31-35", "36-40", "41-45", "46-50", "51-55" "over 55" were allocated "1", "2", "3", "4", "5", "6", "7", "8" respectively.

4.7.3.2 Computer knowledge test coding

As we have seen in Section 4.6.1.1.2 in all questionnaires there were 30 items that measured the knowledge of respondents in different issues of computers. The responses of the first category (ten items) which referred to the knowledge concerning computers were scored as follow: "none" was scored "1", "a little" was scored "2", "quite a lot" was scored "3", and "a lot" was scored "4". The responses in the other two categories, which referred to the respondents' ICT abilities (ten items), as well to the ability of using computers in teaching (ten items), were scored as follows: "not at all" was scored "1", "a little" was scored "2", "well" was scored "3", "very well" was scored "4". Scores on the items in each category were summed for a category score. In addition, the 30 items were summed to obtain a total knowledge score. The minimum total knowledge score was 30 and the maximum score was 120. The higher score on any of the three categories or on the total knowledge scale can be interpreted as having more knowledge about computers.

4.7.3.3 ICT frequency coding

Respondents' answers in using ICT at home as well as teachers' answers in using ICT in teaching were scored as follows: "never" was scored "1", "about an hour each month" was scored "2", "about an hour each week" was scored "3", "several hours a week" was scored "4", "more than an hour a day" was scored "5". Scores in the items in ICT at home and in teaching were summed separately and averaged to create a total score of the frequency. The maximum score represented a very often frequency of ICT at home or in teaching respectively.

4.7.4 Part 2 of the questionnaires

4.7.4.1 Coding of the components of the TRA and TPB

The items of the direct (intention, attitude toward the behaviour, subjective norm and perceived behavioural control) and indirect measures (behavioural, subjective and control beliefs) in teacher's, head teacher's, district officer's and school counsellor's questionnaire were scored between one (1) and seven (7) and averaged. For example head teachers', district officers' and school counsellors' responses to the five intention items (see Section 4.6.1.2.2 and Section 4.6.2.2.2) were averaged to yield a measure of their intention to support the uptake of ICT in their schools. In similar way, their responses to attitude toward the behaviour, subjective norm and perceived behavioural control items were averaged to provide a direct attitude measure, a direct subjective norm measure and a direct measure of perceived behavioural control respectively. Items of behavioural beliefs (belief strength and outcome evaluation) with negative statement were scored in the reverse order (see Section 4.6.1.2.7).

In order to produce a belief-based estimate of attitude, subjective norm and perceived behavioural control, the indirect measures were coded more in accordance with the Ajzen's (2002) recommendations (see equations in Chapter 3). Firstly, each of the belief strength and outcome evaluation measures were multiplied and the products were summed to obtain a belief-based estimate of attitude towards behaviour. Secondly, each of the normative belief strength and motivation to comply measures were multiplied and the products were summed to obtain a belief-based estimate of subjective norm. Thirdly, each of the control belief strength and control belief power measures were multiplied and the products were summed to obtain a belief-based estimate of perceived behavioural control respectively behaviour.

4.7.5 Part 3 of the questionnaires

4.7.5.1 Coding of attitudes items towards computers

In order to obtain a score for the attitudes towards computers, the responses were allocated numerical values, such that "strongly disagree" was scored "1", "disagree" was scored "2", "undecided" was scored "3", "agree" was scored "4", and "strongly agree" was scored "5". For the negative worded items (see Table 4.4) the scoring was reversed. The 62 attitude items were grouped into 8 subscales: 1) computer anxiety, 2) computer confidence, 3) computer usefulness, 4) computer liking/enthusiasm/enjoyment, 5) attitudes towards email, 6) educational impact, 7) social impact, and 8) training needs. Scores on the items in each subscale were summed for a subscale score. A higher score on any of the subscales represented a more positive attitude towards computers. Then, the 62 items' scores were summed to create a total computer attitude score. Total attitude score could range from 62, indicating more negative attitudes, to 310, which would indicate more positive attitudes towards computers.

4.7.6 Statistical analysis

A variety of statistical methods were conducted in this study (see Table 4.17). Firstly, in order to determine if teachers, head teachers, district officers and school counsellors responded consistently across items in the questionnaire scales, such as the attitudes towards computers, the TRA and TPB scales, the Cronbach's Alpha reliability method was used. This method was provided by Cronbach (1951, in DeVellis, 1991) and it is the most commonly accepted method of measuring internal consistency in education studies (see Chapter 3). Cronbach's Alpha, or Alpha is an indicator of the internal reliability of an attitude or rating scale, which is computed as the average of the inter-item correlations between all of the items in the scale or subscale (see DeVellis, 1991). According to this method the 0.70 alpha is considered as sufficient level to demonstrate reliability of scales.

Secondly, descriptive analyses, such as frequency distribution, percentages, means, and standard deviations were conducted to describe:

a) the demographic characteristics of the respondents (e.g. gender, age, qualifications, years of teaching experience),

b) the uptake of ICT in schools (e.g. number of computers in schools, number of teaching staff and pupils using computers), and

c) respondents' attitudes towards computers.

Thirdly, one-way Anova methods were used to examine the significance of the differences in attitudes towards computers among the means of the groups. When the results of the one way ANOVA test were statistically significant, Post hoc Scheffe multiple comparisons were conducted to determine where differences between means existed.

Table 4.17 - Methods of the statistical analysis.

	Descriptive statistics				Cronbach's Alpha	Pearson correlation	One way Anova	Regression analysis
	Frequencies	Percentages	Means	Standard Deviations				
Demographic characteristics (e.g. gender, age, teaching experience, qualifications)	√	√	√					
Data about the uptake of ICT in schools	√	√	√			√	√	
Attitudes towards computers	√	√	√	√	√	√	√	√
Theory of Reasoned Action and Theory of Planned Behaviour (Behaviour, Intention, Attitude toward the behaviour, Subjective norm, Perceived behavioural control, Behavioural beliefs, Normative beliefs, Control beliefs)	√	√	√	√	√	√		√

Finally, Pearson Correlation analyses two-tailed were conducted to determine statistically significant relationships between the score of attitudes towards computers and selective demographic data, including gender, age, qualifications and many others.

As far of the TRA and TPB is concerned, the following analyses were conducted. Means scores, frequencies and standard deviations of all the variables of the theory were calculated. Relationships among the eight components of the theory (intention, attitude toward behaviour, subjective norm, perceived behavioural control, belief-based attitude, belief-based subjective norm, and belief-based perceived behavioural control) were described by Pearson correlations. More specifically, the direct and indirect measures of

the theory were correlated, in order to check their relationships. Firstly, the direct measure of attitude towards the behaviour with the summed products of the behavioural beliefs and outcome evaluations were correlated. Secondly, the direct measure of subjective norm with the summed products of the belief strength and motivation to comply were correlated. Finally, the direct measure of perceived behavioural control with the summed products of the control belief strength and control belief power was correlated.

In order to examine the effects of head teachers, district officers and school counsellors' attitudes towards computers on their support of the uptake of ICT in their schools a stepwise regression analysis was used. According to Howitt and Cramer (2001), regression analysis is used to estimate the effects of the independent variable(s) on the dependent variable. Multiple regressions involve many variables, one dependent and many independent variables. The stepwise regression analysis enters independent variable one at a time, to determine which one has the highest correlation with the dependent variable. If any of the independent variables is not a significant predictor to the regression model, it is removed automatically from the regression model (see Kinear and Gray, 2000).

Furthermore, in order to predict: a) teachers' intention and behaviour to use ICT in their teaching and b) head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools, four hierarchical regression analyses (the statistical procedure recommended by Ajzen, 1991) were used; two for the prediction of intention and two for the prediction of behaviour (see Chapters 6 and 8). This "analysis is used when variables are entered in an order predetermined by the researcher on a 'theoretical' basis rather than in terms of statistical criteria. This is done by ordering the independent variables in terms of blocks of the independent variables, called Block 1, Block 2, etc" (see Howitt and Cramer, 2001, p. 277). In the present study the order and content of the blocks of variables for the hierarchical regression analyses were based on the theoretical framework of the Theory of Reasoned Action and Theory of Planned Behaviour (see Sections 6.3.2 and 8.3.1).

4.8 CONCLUSIONS

This chapter has presented and discussed the research design and methodology used in this study. The survey method was identified as the most appropriate method in order to investigate: a) the uptake of ICT in Greek primary schools, b) the attitudes of teachers and executives of education towards computers, c) teachers' intention to use ICT in their teaching and d) executives of education intention to support the uptake of ICT in their schools. Data were collected by using four questionnaires that were based on a theoretical framework of attitudes towards computers, the Theory of Reasoned Action and Theory of Planned Behaviour and a literature review concerning the uptake of ICT in schools.

This study was conducted in four phases. Phase 1 (October 1999-2003) included the literature review of educational innovations and changes in schools. The aim of this was to determine those factors, which influence the uptake of ICT, as well as to determine the role of education executives in innovations and changes in schools. Additionally, Phase 1 included the literature review of attitudes towards computers and theories of attitudes and behaviour. The aim of this was twofold. Firstly it aimed to identify the most appropriate attitude instruments for the main study to measure the attitudes of educators' towards computers. Secondly, it aimed to determine the most appropriate theory to investigate teachers' intention to use ICT in teaching and head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools.

Phase 2 included the pilot study (October 2000-January 2001). The aim of this phase was to develop some research methods and instruments in order to determine which of these are the most appropriate to investigate the aim and the objectives of the main study that presented in Section 4.2. During this phase, four different questionnaires were designed and developed (The Teacher Questionnaire, The Head Teacher Questionnaire, The District Officer Questionnaire, and The School Counsellor Questionnaire). Part 1 of the questionnaires was designed in order to collect information concerning the introduction and use of ICT in Greek primary schools, including information about the hardware and software, the number of teaching staff and pupils that used ICT in their teaching, and the knowledge of respondents about computers. The design of this part

was based on previous questionnaires' design identified from the literature review of the uptake of ICT in schools.

Part 2 of the Teacher Questionnaire was designed, in accordance of the Theory of Reasoned Action and Theory of Planned Behaviour, to investigate teachers' intention to use ICT in their teaching. Additionally, Part 2 of head teachers, district officers and schools counsellors was designed to investigate their intention to support the uptake of ICT in their schools. The design and development of Part 2 followed the procedures recommended by Ajzen and Fishbein (1980) and Ajzen (2002). Finally, Part 3 of the questionnaires used a number of attitude items from previous instruments in order to measure educators' attitudes towards computers. The questionnaires were then translated in the Greek language and were pilot-tested on educators of six primary schools that used ICT for administrative and teaching purposes and revised based on respondents' answers and comments.

In Phase 3 the main study was conducted (March-June 2002). Data were collected in two stages. Stage 1 (collected between March, and April, 2002) included a questionnaire survey about the uptake of ICT, the attitudes of educators towards computers and the factors that influenced teachers' intention to use ICT in their teaching and education executives to support the uptake of ICT in their schools. The data were collected from 181 teachers that used ICT in their teaching, 72 head teachers, 43 district officers and 47 school counsellors of 72 Greek primary schools. In addition to the data collection with questionnaires, a number of different educators were interviewed and schools' web sites and documents were studied to obtain more information about the uptake of ICT and the attitudes of education executives towards computers. Stage 2 (June 2002) included a two pages questionnaire about the TRA and TPB. More specifically, teachers were asked how often they used ICT in their teaching in the previous three months and head teachers', district officers' and school counsellors' were asked whether they supported the uptake of ICT in their schools.

Phase 4 included the coding and analysis of the data (July 2002-January 2004). All the data were analysed using SPSS 12. In order to describe the uptake of ICT in Greek primary schools, and the attitudes of educators towards computers, the descriptive analysis was used, such as frequencies, means and percentages. One Way Analysis of variance (ANOVA) was used to analyse differences between groups. In addition, in

order to examine the association between specific variables, Pearson Correlations were used. Finally, to analyse the data of the TRA and TPB, the following three methods of analysis were conducted. First, descriptive statistics were used (means, standard deviations) for all the components of the theories. Second, relationships between the components were determined using Pearson correlation coefficients. Third, a stepwise regression analysis was used to determine the components that significantly explained the variance in teachers' intention and behaviour to use ICT and head teachers' district officers' and school counsellors' intention and behaviour to support the uptake of ICT in schools.

The following four chapters present the results of this study. Chapter 5 presents the data concerning the uptake of ICT in Greek primary schools. Chapter 6 presents teachers' attitudes towards computers and their intention to continue to use ICT in their teaching. Chapter 7 presents head teachers', district officers' and school counsellors' attitudes towards computers and the effect on their support of the uptake of ICT in their schools. Finally, Chapter 8 presents head teachers', district officers' and school counsellors' attitudes towards behaviour, subjective norms and perceived behavioural control and its effects on their intention and behaviour to support the uptake of ICT in schools.

CHAPTER 5

THE UPTAKE OF INFORMATION COMMUNICATION TECHNOLOGY IN GREEK PRIMARY SCHOOLS

5.1 INTRODUCTION

As we have seen in Chapter 4 (see Section 4.2), the aim of this study was to investigate the factors that influence head teachers, district officers and school counsellors to support the uptake of ICT in their schools as well as teachers' intention and behaviour to use ICT in their teaching. In order to achieve this aim, part of the design and methodology of the main study was to investigate the uptake of ICT in Greek primary schools. The findings of this investigation are presented in this chapter. The data for the uptake of ICT, as mentioned in Chapter 4, were collected through questionnaires and interviews with teachers and education executives of 72 Greek primary schools, where ICT was used for administrative and teaching purposes. Moreover, data were collected from the websites of schools and districts, from documents about the policy of ICT in schools and also from informal discussions and observations made during visits in some schools and districts. This chapter presents the sample and the general characteristics of the schools under study, the use of ICT in the 72 schools and other factors related to ICT use, such as use of ICT at home and educators' knowledge and skills of ICT.

5.2 DESCRIPTION OF THE QUESTIONNAIRE SAMPLE

The sample of the main study, as is shown in Figure 5.1, consisted of 181 teachers in 72 Greek state primary schools who used ICT in their teaching, as well as 72 head teachers, 43 district officers and 47 school counsellors of these schools. The distribution of the sample per district and school is presented in Table 5.1.

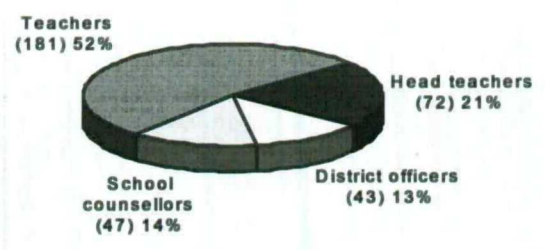

Figure 5.1 - Distribution of questionnaire respondents.

Table 5.1 – Distribution of the sample by district officers and school.

District officers	District schools	Number of teachers	Head teachers	School counsellors
District officer 1	School 6	3	Head teacher 6	School counsellor 19
	School 7	1	Head teacher 7	School counsellor 21
	School 8	2	Head teacher 8	School counsellor 22
District officer 2	School 13	3	Head teacher 13	School counsellor 9 *
District officer 3	School 18	2	Head teacher 18	School counsellor 6
	School 64	2	Head teacher 64	
District officer 4	School 19	3	Head teacher 19	School counsellor 5
District officer 5	School 21	4	Head teacher 21	School counsellor 2 **
District officer 6	School 2	3	Head teacher 2	School counsellor 8
District officer 7	School 17	2	Head teacher 17	School counsellor 2 **
	School 23	3	Head teacher 23	
District officer 8	School 14	3	Head teacher 14	School counsellor 7
	School 15	4	Head teacher 15	
	School 16	4	Head teacher 16	
District officer 9	School 10	2	Head teacher 10	School counsellor 1
	School 11	1	Head teacher 11	
District officer 10	School 46	1	Head teacher 46	School counsellor 11
District officer 11	School 58	1	Head teacher 58	School counsellor 12
District officer 12	School 29	1	Head teacher 29	School counsellor 16
District officer 13	School 48	2	Head teacher 48	School counsellor 31
	School 49	2	Head teacher 49	
District officer 14	School 54	3	Head teacher 54	School counsellor 13
District officer 15	School 3	3	Head teacher 3	School counsellor 18
	School 4	6	Head teacher 4	
	School 42	1	Head teacher 42	
	School 20	3	Head teacher 20	School counsellor 23
District officer 16	School 59	6	Head teacher 59	School counsellor 36
	School 60	5	Head teacher 60	
	School 61	2	Head teacher 61	
District officer 17	School 22	1	Head teacher 22	School counsellor 24
	School 36	1	Head teacher 36	School counsellor 14 ♦
District officer 18	School 37	1	Head teacher 37	School counsellor 27
	School 38	1	Head teacher 38	
District officer 19	School 5	7	Head teacher 5	School counsellor 15 ⊗
District officer 20	School 9	5	Head teacher 9	School counsellor 10
	School 12	1	Head teacher 12	
District officer 21	School 1	4	Head teacher 1	School counsellor 17
	School 62	3	Head teacher 62	School counsellor 14 ♦
District officer 22	School 31	2	Head teacher 31	School counsellor 25
District officer 23	School 32	1	Head teacher 32	School counsellor 9 *
District officer 24	School 69	1	Head teacher 69	School counsellor 41
District officer 25	School 72	3	Head teacher 72	School counsellor 40

Table 5.1 (continued).

District officers	District schools	Number of teachers	Head teachers	School counsellors
District officer 26	School 52	3	Head teacher 52	School counsellor 47
District officer 27	School 30	2	Head teacher 30	School counsellor 20
	School 47	1	Head teacher 47	
District officer 28	School 66	3	Head teacher 66	School counsellor 43
	School 67	3	Head teacher 67	
District officer 29	School 68	3	Head teacher 68	School counsellor 44
District officer 30	School 65	1	Head teacher 65	School counsellor 37
District officer 31	School 25	2	Head teacher 25	School counsellor 4
	School 26	2	Head teacher 26	
	School 27	1	Head teacher 27	
District officer 32	School 24	1	Head teacher 24	School counsellor 38
	School 28	2	Head teacher 28	School counsellor 15 ⊗
District officer 33	School 33	4	Head teacher 33	School counsellor 26
	School 34	3	Head teacher 34	
	School 35	4	Head teacher 35	
	School 70	2	Head teacher 70	School counsellor 27
District officer 34	School 39	4	Head teacher 39	School counsellor 28
District officer 35	School 43	1	Head teacher 43	School counsellor 30
District officer 36	School 44	2	Head teacher 44	School counsellor 3
	School 45	2	Head teacher 45	
District officer 37	School 50	4	Head teacher 50	School counsellor 46
	School 63	3	Head teacher 63	School counsellor 45
District officer 38	School 51	1	Head teacher 51	School counsellor 32
District officer 39	School 53	6	Head teacher 53	School counsellor 33
District officer 40	School 57	1	Head teacher 57	School counsellor 35
District officer 41	School 71	2	Head teacher 71	School counsellor 42
District officer 42	School 40	3	Head teacher 40	School counsellor 29
	School 41	3	Head teacher 41	
	School 56	2	Head teacher 56	School counsellor 39
District officer 43	School 55	1	Head teacher 55	School counsellor 34
43 district officers	72 schools	181 teachers	72 head teachers	47 school counsellors

*Notes: */ ** / ♦ / ⊗ = The school counsellors shown by symbols work in schools with different district officers. For instance, the School counsellor 9, who works with school 13 of District officer 2, also works with school 32 of the District officer 23 as well.*

Table 5.1 shows the schools, the teachers, head teachers and school counsellors existing in the area of the district officers. Every district in the Greek educational system has a district officer and in the case of a great number of schools there is more than one school counsellor. For example, as we can see in the first row of the table, schools coded with 6, 7 and 8 belonged to the district officer 1 and every school had its different school counsellor (School counsellor 19, School counsellor 21, School counsellor 22). In contrast with the three previous schools, the schools of district officer 3 coded with 18

and 64 had the same school counsellor. Moreover, Table 5.1 shows that some school counsellors worked at schools which were administered by different district officers, such as School counsellor 22. The characteristics of the schools which participated in this study are presented in more detail in Section 5.3.

5.2.1 Gender distribution

The distribution of gender of the questionnaire sample, shown in Figure 5.2, indicates that 247 were males and 96 females. In particular, in the teacher sample, 107 (59.1%) were males and 74 (40.9%) were females. Among head teachers, 58 (80.6%) were males and 14 (19.4%) females. Among district officers, 41 (95.3%) were males and two (4.7%) females and among school counsellors, 41 (87.2%) were males and six (12.8%) females.

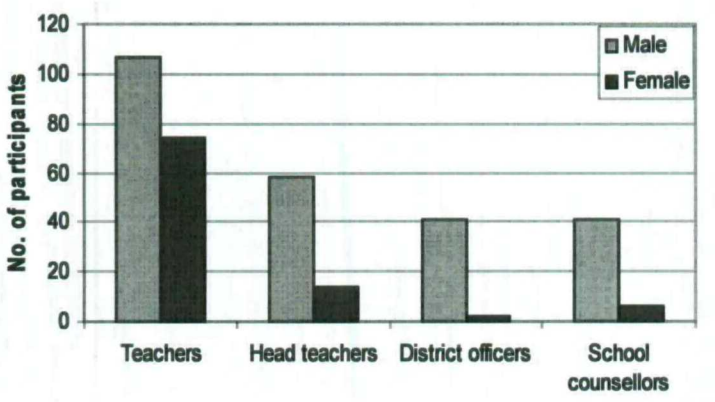

Figure 5.2 - Gender distribution of the sample.

The gender data were further analysed to examine the differences in teachers', head teachers', district officers' and school counsellors' attitudes towards computers. The results of this analysis are presented in Chapters 6 (see Section 6.2.1) and 7 (see Section 7.2.1).

5.2.2 Age distribution

Figure 5.3 shows that 2/3 of the teachers who used computers in the 72 schools were under 40 years old and the rest, almost 1/3, were between 41 to 50 years old. Figure 5.3 also shows that there was only one teacher over 50 years old. In addition, Figure 5.3 shows that head teachers, district officers and school counsellors were all older than 30, with the majority being in their 40's or 50's.

This is due to the selection criteria of the Ministry of Education. According to the Greek Ministry of Education and Religious Affairs in order to become an executive in education, many years of teaching experience are required. For example, in order for a teacher in primary education to become a head teacher of a school, amongst other qualifications, he/she must have at least eight years teaching experience, while in order to become a district officer or school counsellor in a district, at least ten years teaching experience is required.

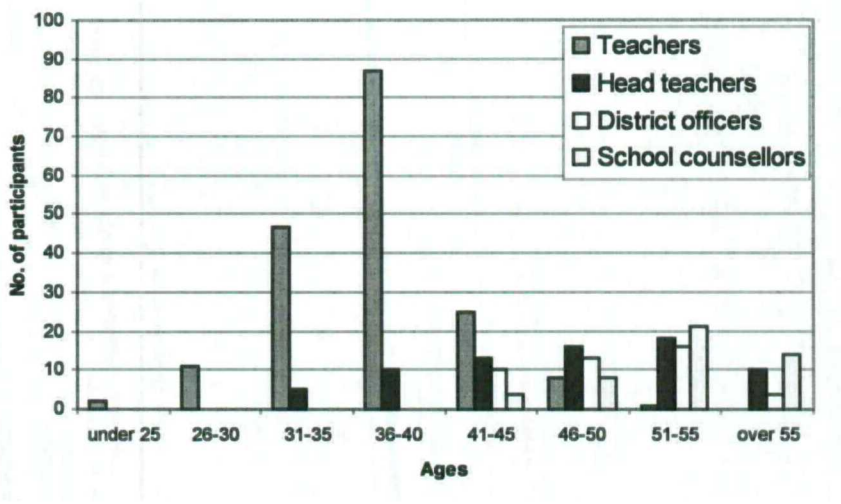

Figure 5.3 – Age distribution of the sample.

As we have seen in Chapter 4 (see Section 4.6.1.1.1), previous research has shown that in some cases older teachers' (and other adults) attitudes towards computers are less positive. Therefore, possible differences between the various age groups of teachers, head teachers, district officers and schools counsellors and their attitudes towards computers were examined in Chapters 6 (see Section 6.2.2) and 7 (see Section 7.2.2).

5.2.3 Qualifications

As part of the study, teachers, head teachers, district officers and school counsellors were asked about their qualifications. The results arising from their answers are shown in Table 5.2 in three categories. Category "A" were those teachers and executives of education who possessed only one degree. Category "B", were the teachers and executives of education who possessed more than one degree or in-service training. Category "C", were the teachers and executives of education who possessed some

degrees from the previous categories as well as a Masters degree and a PhD in various subjects[1].

The majority of all categories shown in Table 5.2 had a degree from a Pedagogical Academy (i.e. two years studies) or from a Faculty of Primary Education (i.e. four years studies). Furthermore, Table 5.2 shows a group of teachers who did not possess the Primary Education teacher's degree as their first degree. These degrees came from the Faculties of Mathematics, Informatics or Physics. These were teachers who taught ICT as a separate subject in some classes of a specific category of schools.

In Table 5.2 we can see that in Category "C" there were hardly any head teachers and district officers with a postgraduate degree (there is just one head teacher). On the other hand, among teachers and school counsellors, there was a small number with a postgraduate degree. This is probably because the majority of teachers were Pedagogical Academies' graduates. These teachers were not able to do any postgraduate studies, as their degree was not of higher education. They have this opportunity only when they finish the programme of equalisation (Eksomiosi) or Maraslio Didaskalio. In addition to the previous reason, postgraduate studies for teachers started in Greece at the beginning of the '90s, a few years after the foundation of the Faculties of Primary Education, resulting in not many teachers being able to attend such studies.

[1] Until 1985 in order to become a teacher someone had to graduate from the Pedagogical Academy, where the studies lasted two years and the degree was not considered one of higher education. The Greek Ministry of Education and Religious Affairs with the purpose to upgrade the teachers' qualifications ceased the function of Pedagogical Academies and founded Faculties of Primary Education in the Greek Universities in 1985, where studies lasted four years. Moreover, so that training be provided to the graduates of Pedagogical Academies, a training programme was started in many Faculties of Primary Education in Greece in 1992 called "Academic and Professional Upgrade of Primary Education Teachers" or "Eksomiosi". During this training programme the teachers of Pedagogical Academies, according to their teaching experience, had to attend a particular number of modules for six months to one year in the Faculties of Primary Education. They sit for exams in these modules and if they are successful they obtain a degree. This degree, in combination with the degree of Pedagogical Academy, equalises them with the graduates of the Faculties of Primary Education. Among the modules attended is ICT in education, which includes both theoretical training and practice in ICT laboratories. As far as the training of practising teachers is concerned (in-service training), it takes place in "Maraslia Didaskalia" of Primary Education, where studies last two years. Teachers who have five years teaching experience and have been successful in written exams have the right to study on these courses. Among the modules taught is ICT in education. If teachers wish to do a postgraduate degree, they should either have a degree from a Faculty of Primary Education, or a degree from the Pedagogical Academy and Eksomiosi or a degree from the Pedagogical Academy and Maraslio Didaskalio of Primary Education.

Table 5.2 - Teachers', head teachers', districts officers' and school counsellors' qualifications.

	Degrees and specialisations	Teachers		Head teachers		District officers		School counsellors		Total	
		n	%	n	%	n	%	n	%	n	%
Category A	Pedagogical Academy	24	13.3	13	18.1	12	27.9	0	0	49	14.3
	Faculty of Primary Education	19	10.5	0	0	0	0	0	0	19	5.5
	Other degree	7	3.9	0	0	0	0	0	0	7	2
Category B	Pedagogical Academy and Eksomiosi	64	35.4	23	31.9	10	23.3	0	0	97	28.3
	Pedagogical Academy and Maraslio Didaskalio of Primary Education	13	7.2	18	25	8	18.6	8	17	47	13.7
	Pedagogical Academy and other degree	14	7.7	3	4.2	2	4.7	3	6.4	22	6.4
	Pedagogical Academy, Eksomiosi and Maraslio Didaskalio of Primary Education	7	3.9	5	6.9	0	0	8	17	20	5.8
	Pedagogical Academy, Maraslio Didaskalio of Primary Education and other degree	2	1.1	4	5.6	8	18.6	15	31.9	29	8.5
	Pedagogical Academy and Faculty of Primary Education	0	0	1	1.4	0	0	0	0	1	0.3
	Pedagogical Academy, Faculty of Primary Education and Maraslio Didaskalio of Primary Education	0	0	1	1.4	2	4.7	0	0	3	0.9
	Pedagogical Academy, Eksomiosi, Maraslio Didaskalio of Primary Education and other degree	0	0	2	2.8	1	2.3	4	8.5	7	2
	Pedagogical Academy, Eksomiosi and other degree	8	4.4	1	1.4	0	0	1	2.1	10	2.9
Category C	Faculty of Primary Education and Masters	7	3.9	0	0	0	0	0	0	7	2
	Other degree and Masters	5	2.8	0	0	0	0	0	0	5	1.5
	Pedagogical Academy, Faculty of Primary Education and Masters	2	1.1	0	0	0	0	0	0	2	0.6
	Pedagogical Academy, Eksomiosi and Masters	3	1.7	0	0	0	0	1	2.1	4	1.2
	Pedagogical Academy, other degree and Masters	2	1.1	0	0	0	0	0	0	2	0.6
	Faculty of Primary Education, Maraslio Didaskalio of Primary Education and Masters	2	1.1	0	0	0	0	0	0	2	0.6
	Pedagogical Academy, Maraslio Didaskalio of Primary Education, other degree and Masters	0	0	1	1.4	0	0	1	2.1	2	0.6
	Pedagogical Academy, Maraslio Didaskalio of Primary Education and Masters	0	0	0	0	0	0	3	6.4	3	0.9
	Faculty of Primary Education, Masters and PhD	2	1.1	0	0	0	0	0	0	2	0.6
	Pedagogical Academy, Eksomiosi, Masters and PhD	0	0	0	0	0	0	1	2.1	1	0.3
	Pedagogical Academy, Maraslio Didaskalio of Primary Education, Masters and PhD	0	0	0	0	0	0	2	4.3	2	0.3
	Total	181	100	72	100	43	100	47	100	343	100

Generally, (see Table 5.2) it is shown that the majority of the sample belonged to the Category "B". Table 5.2 shows that in general over 2/3 of the sample had many qualifications indicating that most of the sample had the desire and the interest to continue with their studies and gain further training subsequent to their first degree. Whether there were differences between the three categories of qualifications and their attitudes towards computers are examined in Chapters 6 (see Section 6.2.3) and 7 (see Section 7.2.3).

5.2.4 Teaching experience

Figure 5.4 shows that almost 2/3 of the teachers had 11-20 years of teaching experience while 2/3 of head teachers, district officers and school counsellors have 21 to over 25 years of teaching experience[1].

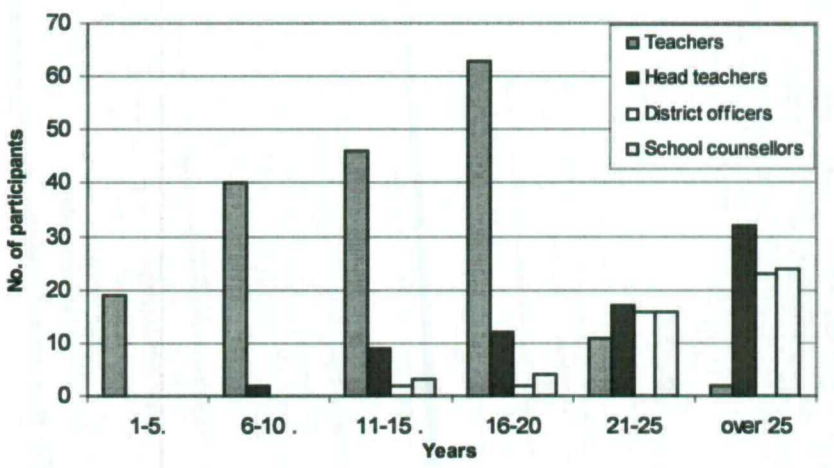

Figure 5.4 - Sample's teaching experience in years.

Figure 5.4 shows that head teachers, district officers and school counsellors had more years' teaching experience than teachers. These additional years of teaching experience are expected because of the selection criteria set by the Ministry of Education for executives in education. In order for a Greek teacher to become a head teacher, eight years of teaching experience is required, whereas in order to become a district officer or school counsellor ten years of teaching experience is required. The data were analysed

[1] In the Greek educational system teachers often hold positions for one to five years outside schools, such as in Ministry of Education, Pedagogical Institute, Universities and other educational organisations. Therefore, in the questionnaires of this study the teaching experience of teachers, district officers and school counsellors include also their educational experience in these organisations.

more in Chapters 6 (see Section 6.2.4) and 7 (see Section 7.2.4) in order to examine any differences between teaching experience and attitudes towards computers.

Another variable, which was included in the questionnaires of the educators, was the years they have worked in the particular position. The results are presented in the following section.

5.2.5 Years of being a teacher/head teacher/district officer/school counsellor at the current position

The respondents were asked to indicate the years spent working in their current schools or districts. The purpose of this question was to collect information in order to investigate in Chapters 6 (see 6.2.5) and 7 (see Section 7.2.5) whether there were differences in attitudes towards computers between those educators who had worked only a few years in their current schools or districts and those who had worked longer.

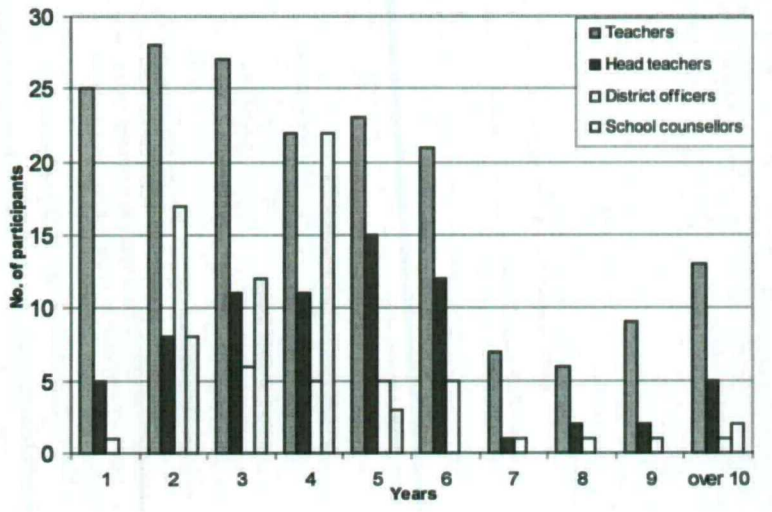

Figure 5.5 - Years of being a teacher/head teacher/district officer/school counsellor at the current position.

Figure 5.5 shows that almost 2/3 of the teachers and head teachers under study were based in their current schools for up to six years, while the majority of the district officers and school counsellors were based in the districts for two to six years.

The general characteristics of the 72 schools under study such as the number of teaching staff and the pupils are presented in Section 5.3 below.

5.3 SCHOOLS' CHARACTERISTICS

The 72 schools, in this study were situated in the areas of 43 district officers and 47 school counsellors located in different areas of Greece. The majority of them were involved with some curriculum development projects coordinated by the Greek Ministry of Education and Religious Affairs and the European Union (see Chapter 1, Section 1.3.1). In the following two sections the geographical area and the number of teaching staff and pupils in these schools are presented.

5.3.1 Schools' geographical area

Head teachers provided data about the geographical location of their schools which are shown in Figure 5.6. Forty six of 72 schools (63.9%) were in urban areas, four (5.6%) in semi-urban and 22 (30.6%) in rural areas. These results were analysed in Chapters 6 (see Section 6.2.6) and 7 (see Section 7.2.6) in order to identify any possible differences in teachers' and head teachers', attitudes towards computer.

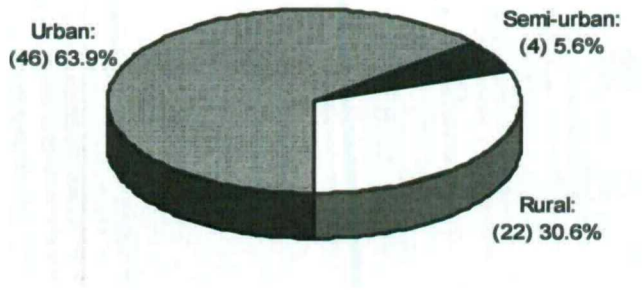

Figure 5.6 – Distribution of schools according to their geographical area.

The number of teaching staff and pupils of the 72 schools is presented in the following section.

5.3.2 The teaching staff and pupils in the study schools

The head teachers were asked to indicate the total number of teaching staff and pupils in their schools. Figure 5.7 shows that the number of teaching staff per school varied from two (e.g. see School 58) to 38 (e.g. see School 55) and the number of pupils varied from 15 (e.g. see School 58) to 451 (e.g. see School 7). In general, this figure shows that as the number of pupils increased, so did the number of teaching staff.

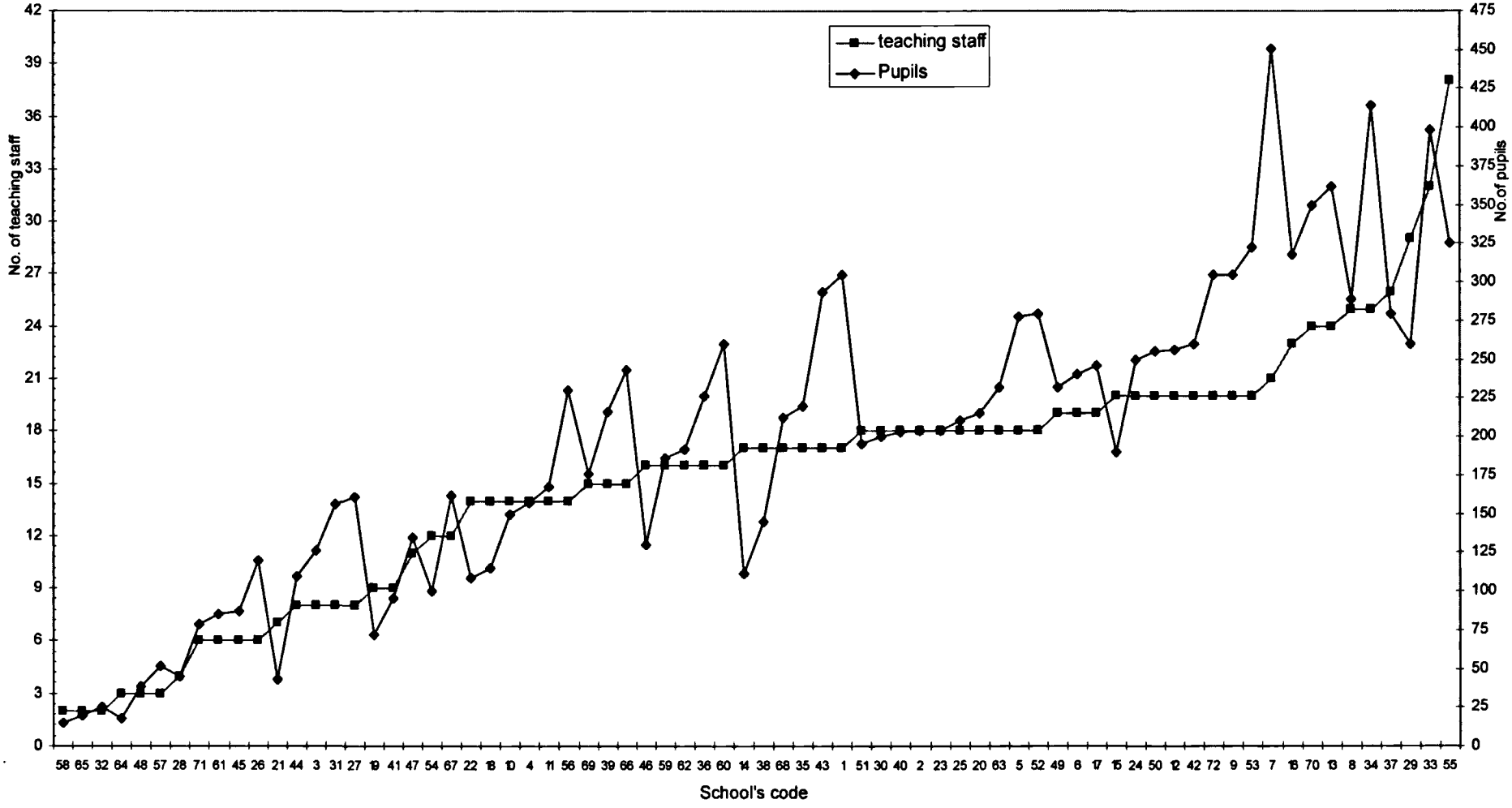

Figure 5.7 – The teaching staff and pupils in the study schools.

In the following sections, the following results are presented: the way and the reasons for introducing ICT in schools, the time ICT is used for teaching, administrative purposes and personal use of the teacher and the availability of hardware and software in the 72 schools.

5.4 THE INTRODUCTION OF ICT IN THE 72 SCHOOLS

This section presents the initiation phase (see Fullan, 2001) of ICT in the 72 Greek primary schools. The first stage involved asking the executives of education to list the projects that had been introduced and implemented in their schools during the past five years (see head, district officer and school counsellor questionnaire). Additionally, information (e.g. Websites of projects) from the Ministry of Education[1] and from the schools was examined. Finally, data from the interviews with the teachers and executives of education were also collected.

The results showed first of all that most schools introduced and implemented ICT through their participation in various projects the purposes of which were described in Section 1.2.3.1 (see Chapter 1). There were several reasons for the decision of most schools to introduce ICT into their school. According to the results of the interviews with teachers and executives of education and the study of official documents of the Ministry of Education and the schools, many of these reasons seem to be related to the rationales (i.e. social, vocational, pedagogical, catalytic, IT rationale, cost-effectiveness rationale and special needs rationale) of Hawkridge (1991) mentioned in Chapter 1 (see Section 1.3). For example some of the answers of educators presented further on, show that the introduction of ICT in their schools took place in order to improve pupils' learning, to strengthen the role of the teacher and to promote new methods of teaching. In other words these reasons are influenced by the pedagogical and catalytic rationales.

At this point, I am presenting some evidence from the interviews to reveal specific factors, e.g. rationales. The following answers from the interviews of educators illustrate specific rationales, for example a pedagogical rationale:

[1] See http://www.pi-schools.gr/programs/index.html
http://odysseia.cti.gr/English/ODYSSEIANEW/about.htm

"... purpose (of the introduction) was to update the way of teaching. I thought that the pupils would show interest and that the foreign language lesson in a state school will be much more appreciated after this update"[1] (School 9, Teacher of English language).

"... we aimed at making the lesson more enjoyable and interesting for pupils" (School 9, Head teacher).

"There was a need for some subjects, such as geography, language, mathematics to be taught with educational software being used without being necessary for these to be taught in the traditional way. We have tried to incorporate ICT in the programme of studies and create alternative ways of teaching" (School 9, School counsellor).

"I used to believe and I still do believe that computers give me the opportunity to teach more effectively in the classroom. My role changes and by practising new ways every day I alternate the teaching process and increase the interest of my pupils in cooperation and development of initiatives" (School 5, Teacher).

Moreover, some educators mentioned reasons for introducing ICT in their schools, which were related to the social and vocational rationales. For example:

"The development in computers is radical. The school should take over initiatives so that our pupils obtain computer knowledge and their use which can be proved to be useful in society" (School 10, Head teacher).

"Nowadays if someone does not speak foreign languages nor understand computers they do not know anything. Where can they find a job without these qualifications? ... Our district has decided, because our pupils are still young, that, it is useful to introduce computers ..." (School 10, District officer).

"We believe that the State Education should be adapted to the challenges of contemporary technology so that our pupils are initiated into the Information Society and take advantage of the possibilities offered by the Internet. In this way they gain the essential know-how and when asked to take action in this sector they can respond successfully" (School 10, Website).

[1] The original quotations were in Greek language and these are translations.

Apart from the above rationales, the educators mentioned other reasons which are generally related to the improvement of the school and its communications. For example, according to the head teacher of School 2, the reason for the introduction of ICT in his school was mainly because their area had became downgraded through pollution. ICT was used to help the pupils develop ecological projects and study the effects of pollution. The school reported that: "The downgraded area, the lack of green and the existence of a number of contamination sources next to the houses of residents as well as the struggles of residents to improve their quality of life has been the stimulus so that teachers and pupils get involved in ecological projects and environmental education by developing New Technologies and that this becomes the pleasant area of action for all of us" (School 2, Head teacher).

Another school located in a rural area introduced ICT in order to communicate with other schools. More specifically, the school explained on its website that "because our school has been geographically isolated (mountainous, 950 meters altitude, difficult road net), an attempt has been made by the teachers of our school to have closer links to the developments and changes taking place everyday around us and so be aware of those. This is achieved through the use of Information Technology and the connection to the Internet abroad where we can be in contact with many other schools in Greece but also abroad..." (School 32, Website).

Apart from the participation of the schools in projects related to the introduction of ICT, many of the schools also participated in other projects as well, related to the environment, the civilisation but also the improvement of the education of pupils in general. According to the data collected, many of these projects motivated their schools to introduce ICT to a great extent and supported its implementation.

In another school (School 3) a teacher mentioned: "... We participate for the fourth successive year in the European project Socrates with other European schools. During our participation teachers of a school in Glamsbjerg in Denmark, in Kinlochbervie in Scotland, in Gubbio and Florence in Italy had meetings. During these meetings teachers exchanged their views, ideas, methods of teaching, they started a project and found new ways of communication between schools, teachers and pupils in Europe using new technologies. The pupils with the help of their teachers developed a number of activities which they presented on the website of their school... Our pupils, through this project

and the Internet, managed to contact recognized personalities, and got familiar with new ideas..." (School 3, Teacher). In addition, the same school mentioned participating in another European program: "...Pupils enjoy the project even if it takes time. It brings them closer to computers and the Internet world" (School 3, Head Teacher). A brochure, of a semi-urban school mentioned the following about their participation in a European project: "During physics, environmental education, mathematics or other subjects, pupils discuss the results of their measurements, they study the graphs created automatically by the computer and exchange these results and their observations with their European peers, their classmates in the representative class, either through the Bulletin Board or e-mail or video - conference" (School 21, School's brochure).

The above shows that the 72 schools introduced ICT through their participation in projects supported by the Ministry of Education or other organisations. Their participation in these projects shows their good intention and positive attitude towards the introduction and implementation of innovations

In the following subsection the time ICT is used in the 72 schools for teaching and administrative purposes is discussed.

5.4.1 Time spent on using ICT for teaching and administrative purposes

In this study, the head teachers were asked to give the number of years ICT is used for administrative and teaching purposes and for personal use by teachers. The results of their answers are presented in Figure 5.8.

Figure 5.8 shows that ICT in the 72 schools was used from between one to nine years. Moreover, Figure 5.8 show that the time these schools started using ICT was towards the end of the 90s, a time when most of the projects described in Chapter 1 (see Section 1.3.1) began. Specifically, Figure 5.8 shows that most schools have been using ICT for administrative purposes from between two to five years, and for teachers' personal use from between one to three years while for teaching purposes from two to three years.

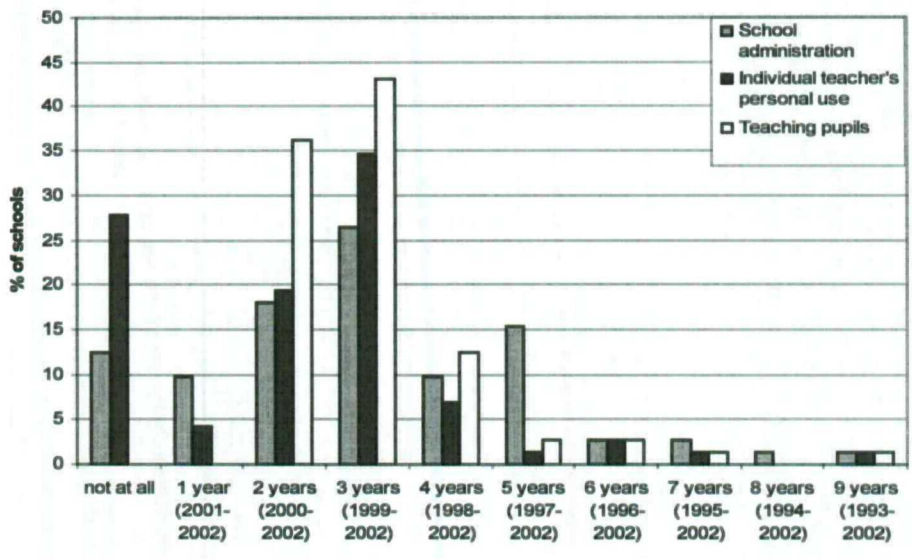

Figure 5.8 – Computer use in schools for teaching and administrative purposes and individual teacher's personal use (in years).

The results presented in Figure 5.8 show that ICT has been used for administrative purposes for more years in some schools in comparison to the personal use by teachers and the use for teaching. Figure 5.8 also shows that there was a small number of schools which did not use ICT in administration (i.e. nine schools) and for personal use by teachers (20 schools). In the following section the availability of hardware and software in the 72 schools for teaching and administrative purposes is presented.

5.5 Hardware availability for teaching purposes

As we have seen in Chapter 2 (see Section 2.3.3.5), the availability and quality of hardware is seen as a major condition for integrating ICT in schools. For example, Pelgrum (2001) in the international study of the use of ICT conducted in 26 countries by the International Association for the Evaluation of Educational Achievement (IEA), found out that an insufficient number of computers and peripherals and an insufficient number of computers that can simultaneously access the Internet were important obstacles to the integration of ICT in education. In this study, therefore the head teachers were asked a number of questions about the availability of hardware in their schools for teaching purposes. Table 5.3 below shows the availability of the hardware in the 72 schools. The following sections presents the data of this table with regard to the number of computers, the pupil/computer ratio, the quality of the available equipment, the access to internal networks and to the Internet.

Table 5.3 – Computers in schools for teaching purposes.

	A	B	C	D	E	F	G	I
Schools' code	**total number of computers**	**over 3 years old**	**multimedia**	**linked to Internet**	**linked to an internal network**	**computer laboratory**	**library**	**class-rooms**
1	10	10	10	10	10	10	0	0
2	11	11	11	11	11	11	0	0
3	17	17	17	17	17	17	0	0
4	17	17	17	17	17	17	0	0
5	12	12	12	12	12	12	0	0
6	10	10	10	10	10	10	0	0
7	11	4	11	11	11	11	0	0
8	10	10	3	1	10	10	0	0
9	10	10	10	10	10	10	0	0
10	11	0	11	1	0	11	0	0
11	6	3	6	1	0	6	0	0
12	6	6	6	0	0	6	0	0
13	10	0	10	10	0	10	0	0
14	9	2	8	8	8	8	0	0
15	7	4	3	1	6	6	0	0
16	12	6	6	12	0	10	0	2
17	4	0	4	1	0	4	0	0
18	5	0	5	0	0	5	0	0
19	6	0	6	6	6	6	0	0
20	4	4	4	4	0	4	0	0
21	7	0	7	7	7	7	0	0
22	10	0	10	10	10	10	0	0
23	11	11	11	11	11	11	0	0
24	5	0	5	5	0	5	0	0
25	5	5	1	1	0	5	0	0
26	7	5	7	2	0	0	0	6
27	5	0	5	5	0	0	5	0
28	4	0	4	0	0	0	0	4
29	9	0	9	1	9	9	0	0
30	5	5	5	1	0	0	5	0
31	10	0	10	10	10	10	0	0
32	4	0	4	4	0	0	0	4
33	12	12	12	2	12	12	0	0
34	12	12	12	12	12	12	0	0
35	10	10	10	10	10	10	0	0
36	11	0	11	10	10	10	0	0
37	12	0	10	10	10	10	0	2
38	13	0	13	13	13	13	0	0
39	12	12	12	1	12	12	0	0
40	12	12	12	3	12	12	0	0
41	11	11	11	3	11	11	0	0
42	10	0	10	0	10	10	0	0
43	10	0	10	10	10	10	0	0
44	5	5	3	0	0	0	0	5
45	4	4	4	4	0	0	4	0
46	12	1	11	12	12	12	0	0
47	6	6	6	1	0	6	0	0
48	3	1	2	1	0	0	3	0
49	5	5	5	1	0	5	0	0
50	10	7	3	2	0	9	1	0
51	11	0	11	10	0	10	0	0
52	9	9	9	9	6	9	0	0

Table 5.3 (continued).

	A	B	C	D	E	F	G	I
Schools' code	**total number of computers**	**over 3 years old**	**multimedia**	**linked to Internet**	**linked to an internal network**	**computer laboratory**	**library**	**class-rooms**
53	11	9	11	11	11	11	0	0
54	6	6	6	6	0	6	0	0
55	14	14	14	14	14	14	0	0
56	5	5	5	1	0	5	0	0
57	6	6	6	6	0	6	0	0
58	4	0	4	4	0	0	0	4
59	18	18	18	10	8	18	0	0
60	10	7	10	2	10	10	0	0
61	6	6	6	6	0	6	0	0
62	8	0	8	0	0	8	0	0
63	7	0	7	2	0	7	0	0
64	4	0	4	4	0	0	0	4
65	3	0	3	3	0	0	3	0
66	9	0	9	9	9	9	0	0
67	8	0	8	8	8	8	0	0
68	12	3	12	12	0	12	0	0
69	11	0	11	0	0	11	0	0
70	9	0	9	9	9	9	0	0
71	6	6	6	6	0	0	6	0
72	12	0	12	5	12	12	0	0

5.5.1 Number of computers available and pupil/computer ratio

According to Pelgrum and Anderson (2001), "a general basic indicator of hardware availability in schools is the number of PCs (or workstations) available in each school that student and/or teachers can readily access for teaching and/or learning purposes" (p. 9). Therefore, the 72 head teachers were asked to indicate the total number of computers that were available for teaching purposes in their schools.

Figure 5.9 below shows the number of computers that were available in the 72 Greek primary schools[1], varying between 3 to 18. More specifically, 31 schools (43.1%) had from 10 to 12 computers. The uniformity present in 43.1% of schools regarding the number of computers (10-12 computers) is a result of the participation of many schools in specific projects (e.g. "The Island of Faiakes") as mentioned in Section 1.3.1. According to the study of the documents relating to these projects, the policy of the

[1] The number of computers that was available in each school is presented in Column A, in Table 5.3 (see Section 5.5).

Greek Ministry of Education and Religious Affairs as far as the hardware was concerned was to equip each school with 10 to 12 computers[1].

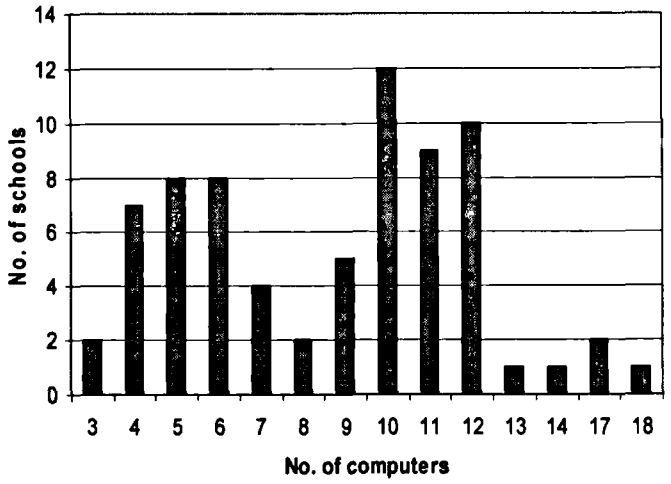

Figure 5.9 – Number of computers used for teaching purposes.

One of the questions arising from the results presented in Figure 5.9 is whether schools had enough computers. According to Pelgrum and Plomp (1991), a question like this "is very difficult to answer from a theoretical perspective because so many factors are involved, such as the goals of computer use, availability of adequate software, training of teachers, etc." (p. 23). However, we may get a tentative answer to the above question by looking at the pupil/computer ratio.

The pupil/computer ratio is one indicator of the extent to which students can access hardware in a school. "This ratio indicates how many students on average have to share one computer... A ratio of 30, for example, indicates that for every 30 students there is one computer available" (Pelgrum and Anderson 2001, p. 120). In the present study, the student/computer ratio was calculated by taking the total number of pupils in a school divided by the total number of computers that were available in that school for teaching purposes. The pupil/computer ratios in the 72 schools is shown for each school in Figure 5.10 below in descending order.

[1] See the projects' web site at: http://odysseia.cti.gr/mnistires/ekso.html.

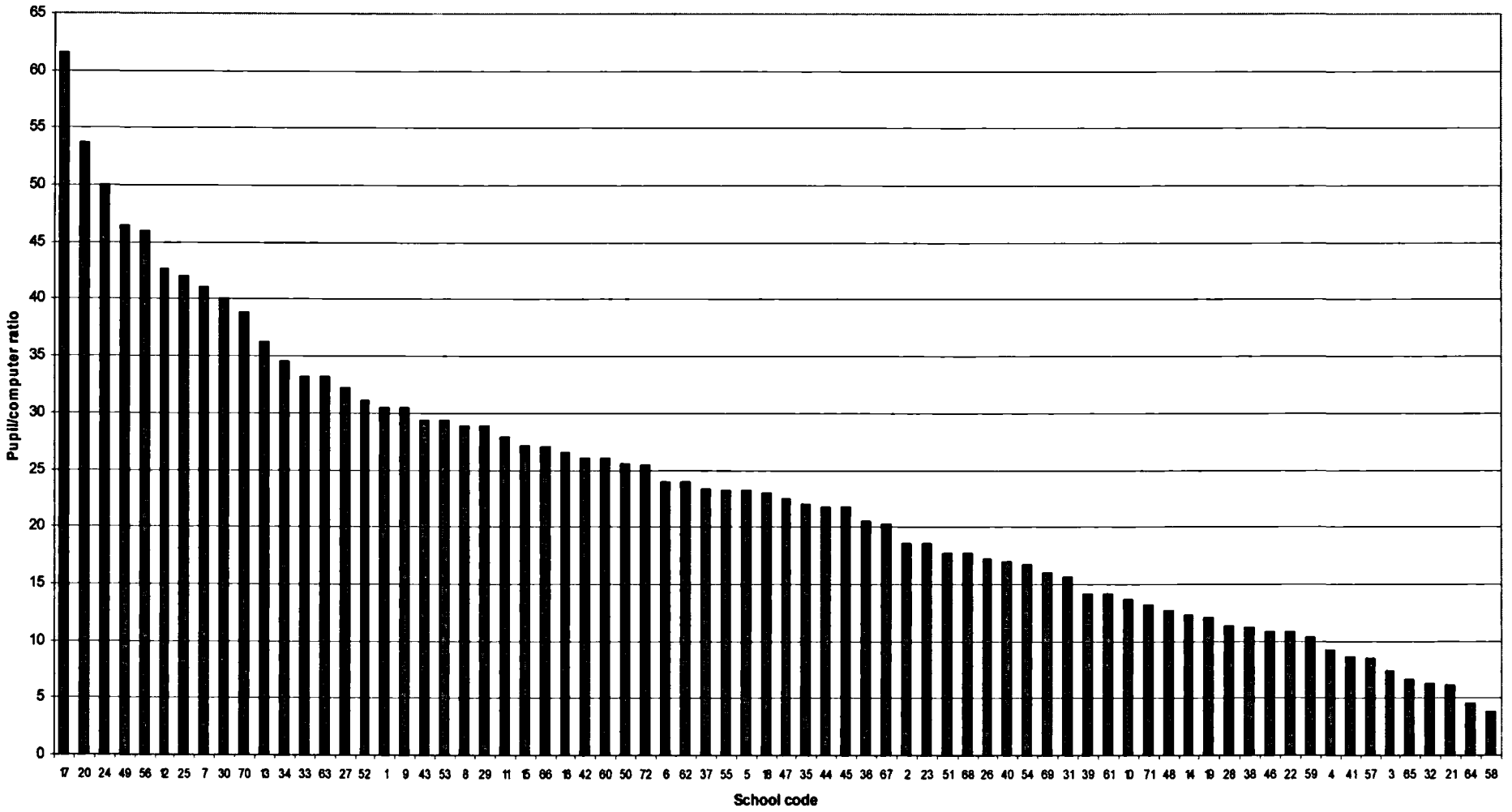

Figure 5.10 – Pupils computer ratio.

Figure 5.10 shows that the pupil/computer ratio varied from 3.8 (see School 58) pupils to 65 pupils (see School 17) per computer. Most schools had a pupil/computer ratio of between 5.1 and 15 pupils per computer. Figure 5.10 also shows that schools with small numbers of pupils (50 or fewer) had a ratio of just under 5-7 per computer (see for example Schools 58, 64, 21, 32). On the other hand, as the number of pupils increased, so did the ratio of pupils to computers. For instance, in schools with over 305 pupils (see School 1), the pupil/computer ratio was of the order of 30.5 per computer. Finally, the fact that the pupil/computer ratio was low in some schools does not imply that the teachers and pupils had frequent access to the use of computers all the time.

The next sections present evidence of the type of computers, their age, whether they had multimedia facilities, whether they were connected to internal networks and whether they had access to the Internet.

5.5.2 Types of computers available

Previous research reported in different countries of the world in the 80s and at the beginning of the 90s, showed that most schools used IBM Desktop PC or Macintosh (see for example Pelgrum and Plomp, 1991; 1993). Moreover, from the end of the 90s and the beginning of 2000, there are studies which show that many schools also use Laptop computers in their teaching (Pelgrum and Anderson, 2001; DfEE, 2002).

In this study, the answers given by the head teachers of the 72 schools about the type of computers available for teaching purposes showed that all schools had IBM Desktop PC computers. There was no school using Macintosh or Laptops. However, after my visit to School 8, it emerged that there was a teacher who used two Laptops in her teaching as well as IBM Desktop PCs. These Laptops belonged to her and she used to bring them often to the school in order to use them in her teaching.

The uniformity present in the 72 schools as far as the type of computers is concerned (IBM Desktop PC), happened for the following reason. Many schools, as mentioned earlier (see Section 5.4), participated in various projects of ICT in education or in others, which aimed at the introduction of innovations. The policy of these projects, according

to the official documents of the Ministry of Education, was to provide the schools with IBM Desktop PC computers[1].

Although in this study the head teachers of the schools were not asked for the technical characteristics of the computers available for teaching purposes, there were many Ministry of Education documents, which had such information. For example, the schools which participated in the project "The island of Faiakes"[2] had computers with good technical specifications, such as an Intel Pentiums processor, 200 MHZ, memory of at least 128MB, screen card PCI SVGA with 2MB RAM, screen 15'', and CD-ROM of "8x" speed[3]. It is assumed that the remaining schools of the study would have similar characteristics to the above. As long as these schools have only started using ICT, in the last three years before this research, it is assumed that they would have been equipped with new computers and good technical characteristics.

5.5.3 Age of computers available for teaching purposes and their multimedia facilities

The age of computers in schools, shows indirectly the power of these computers. For instance, at the beginning of this century, much educational software was introduced, which could only be used with the most modern computers, with good technical characteristics such as Pentium 3, 450 MHz, 128 MB RAM, CD-ROM "32x", Windows 2000, etc. Therefore, in this study it is assumed that the schools equipped with state-of-the-art computers with multimedia and communication facilities, could use ICT more imaginatively in teaching, in comparison with schools where the computers were old and old-fashioned.

Figure 5.11 shows that when this study had been conducted (March-June 2002) there were 29 schools whose total number of computers was below three years old and 31 other schools with all their computers over three years old. The remaining 12 schools had computers with ages of both less than three years old and more than three years old.

From these results it appears that almost half of the schools had new computers and therefore it is assumed that they would possess multimedia and communication facilities.

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[1] See the projects' web site at: http://odysseia.cti.gr/English/ODYSSEIANEW/action-ypodomh/default.htm
[2] See the project's web site at: http://www.cc.uoa.gr/faiakes/
[3] See http://edsoft.cti.gr/edsoft/feature.html

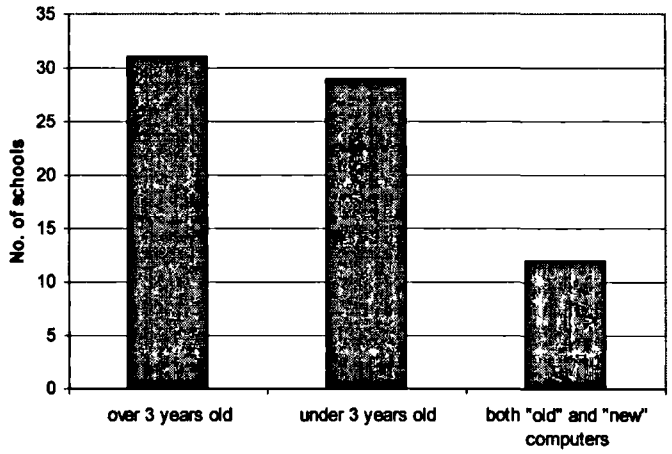

Figure 5.11 – Number of schools and the ages of their computers.

Furthermore, from the remaining schools which had computers over three years old it cannot be assumed that they were old-fashioned. Many of the schools which had computers over three years of age, were schools which participated in projects implementing ICT. According to official documents of these projects the computers, with which the schools were equipped, were new and mainly Pentium and possessed multimedia and communication facilities (Greek Ministry of Education and Religious Affairs, 2002, www.odysseia.cti.gr). Therefore, it can be assumed that many schools, which possessed computers over three years old during this study, may not necessarily be considered as old fashioned and causing problems in teaching.

The head teachers of the 72 Greek primary schools were asked to indicate the number of the total of computers which had multimedia facilities. More specifically, this study has assumed that the multimedia computers would extend the range of educational software and the various websites for teachers to use in their teaching.

Figure 5.12 (see next page) shows that in the majority of schools all the computers which were available for teaching purposes had multimedia facilities. Only ten schools did not have multimedia facilities for all their computers[1].

[1] The number of computers that had multimedia facilities in each school is presented in Column C, in Table 5.3 (see Section 5.5).

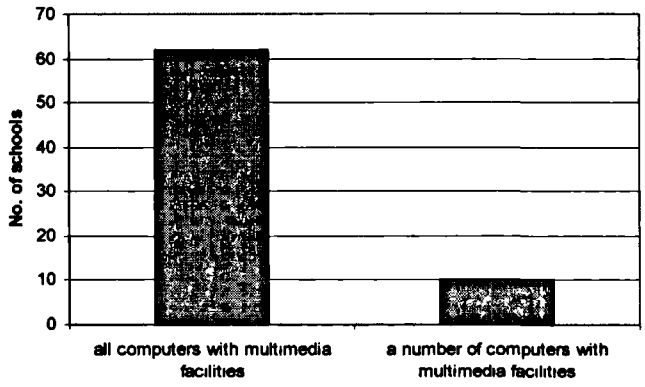

Figure 5.12 - Number of computers which had or did not have multimedia facilities.

Another indicator for the quality of the computers available for teaching purposes in the 72 Greek schools was whether they were connected to internal networks. This indicator is presented in the following subsection.

5.5.4 Connections to internal networks

Figure 5.13 shows that the number of schools connected to internal networks was 38 (52.8%) while schools which did not have any computers connected were 34 (47.2%). Among the 38 networked schools, only six did not have all their computers connected to internal networks (see also Column E, in Table 5.3, Section 5.5). The computers of many of the 38 schools were connected to an internal network through the project "Mnistires"[1].

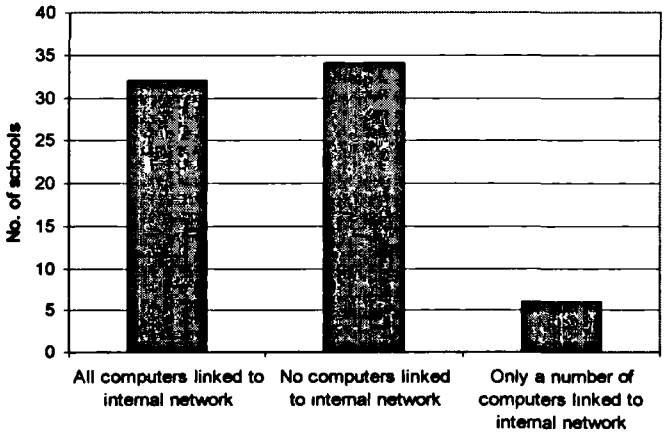

Figure 5.13 – Number of schools linked to an internal network.

[1] See the project's web site at: http://odysseia.cti.gr/mnistires/

5.5.5 Access to communication facilities

Figure 5.14 below shows that among the total of the 72 schools, during this study, (March-July 2002), only seven had no access to the Internet.

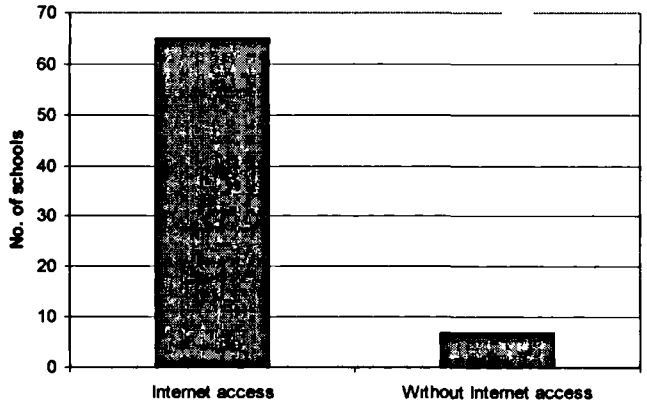

Figure 5.14 – Numbers of schools which have or do not have access to the Internet.

Furthermore, the head teachers were asked to indicate the number of the computers available for teaching purposes which had access to the Internet. Figure 5.15 below shows that among the 65 schools (see Figure 5.14) which had access to the Internet, 40 (61.5%) schools had all their computers connected[1]. In the remaining 25 (38.5%) schools access to the Internet was often provided for only one or two computers amongst the computers available for teaching purposes.

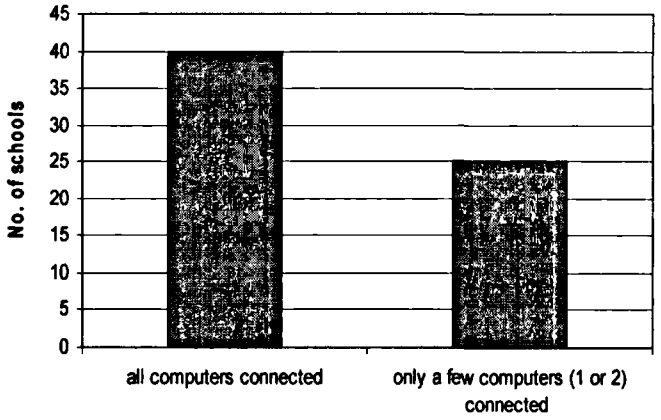

Figure 5.15 – Number of computers connected to the Internet.

[1] The number of computers that connected to Internet in each school is presented in Column E, in Table 5.3 (see Section 5.5).

Finally, head teachers were asked to indicate whether their school had created a website. Figure 5.16 below shows that 40 (61.5%) schools had a website.

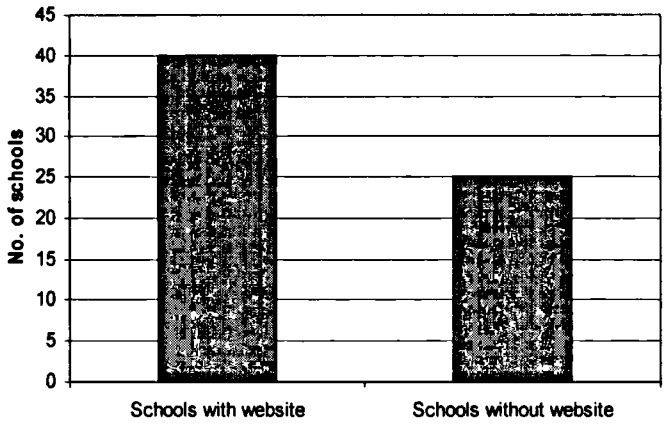

Figure 5.16 – Numbers of schools which had or did not have a website.

The design of the websites has been done either by a member of staff or the parents association or a private Information Technology company. Their content varied; for instance, some websites contained a schedule of school events, information about projects in which the schools participated, links to websites for educational tools, and information on school policies.

5.5.6 Location of computers

Head teachers were asked to indicate the location of computers that were available for teaching purposes. Figure 5.17 show that the majority of schools (83%) located their computers in separate computers rooms. In the remaining 12 schools (16.7%) that did not have a computer room, computers were located in a classroom or a library (see also Table 5.5).

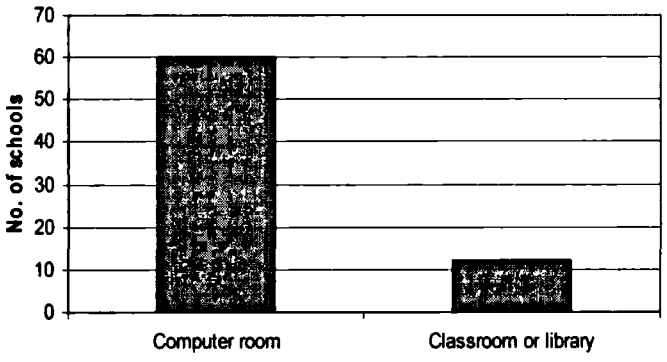

Figure 5.17 – Location of computers in schools.

As far as most of the schools which had their computers in a computer room are concerned, many were influenced by the policy of the projects in which they were participating. For example, the aim of the "Ministries" project of the "Odysseia" programme, (see Section 1.2.3.1, Chapter 1), was the creation of 240 school computer rooms in High Schools, Lyceums and Primary schools of "The Island of Faiakes" project. The layout of the computer rooms established in the 14 schools of this project is depicted in Figure 5.18, below. Similar layouts were also seen in many schools which I visited while conducting this study (March-July 2002).

According to the Greek Ministry of Education and Religious Affairs (1997), "the computer room should have the appropriate and necessary computing and networking equipment, in order to succeed in the lesson's aims, and the layout of the room, the furniture and the machines should ensure the health and safety for the pupils. The computing equipment (hardware and software) of the computer rooms should be contemporary so that the pupils do not consider technology to be unsatisfactory. However, it is neither necessary nor possible for it to be the most contemporary. The use of equipment should be enhanced and this is the message to be conveyed to pupils" (Pedagogical Institute, 1997, www.pi-schools.gr).

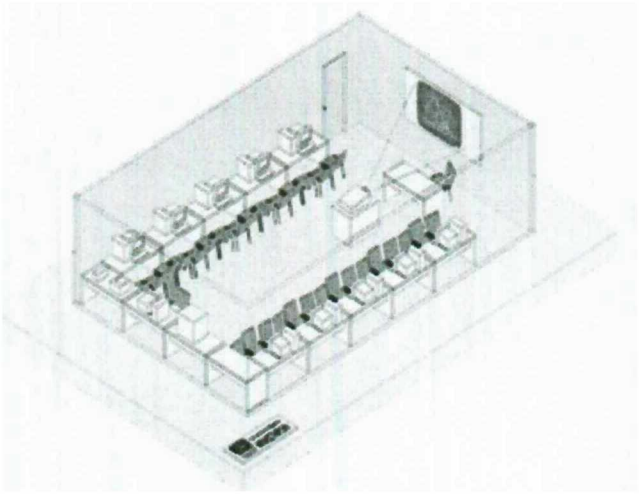

Figure 5. 18 – The layout of the computer rooms in schools.

5.6 HARDWARE AVAILABILITY FOR ADMINISTRATION

Table 5.4 below shows the number of computers that were available in the schools for administration, the age of these computers, whether they were connected to an internal network and whether they had access to the Internet.

Table 5.4 – Computers used for administration.

	N	%
Total number of schools	72	100%
Number and percentage of schools which had computers for administrative purposes	63	87.9%
of which:		
with 1 computer	59	94%
with 2 computers	2	3%
with 3 computers	2	3%
over 3 years old	35	56%
less than 3 years old	28	44%
linked to internal network	11	17%
not linked to internal network	52	83%
with Internet access	50	79%
without Internet access	13	21%

Out of the 72 schools, those which had computers for administration numbered 63 (87.5%) of which 59 had one computer, two schools had two computers and two schools had three computers. The type of computers in all these schools was an IBM Desktop PC. Table 5.4 shows that 35 schools had computers which were more than three years old and 28 schools had computers less than three years. Of the 63 schools, 50 (79%) had access to the Internet. Only 11 schools (17%) had computers connected to an internal network.

In the following section the availability of other equipment in the 72 schools for administrative and teaching purposes is presented.

5.6.1 Availability of other ICT equipment in the schools

Head teachers were asked about the availability of other equipment in the 72 schools for teaching and administration. The total number of schools, which had at least one item out of the categories of peripherals and other equipment, is presented in Figure 5.19.

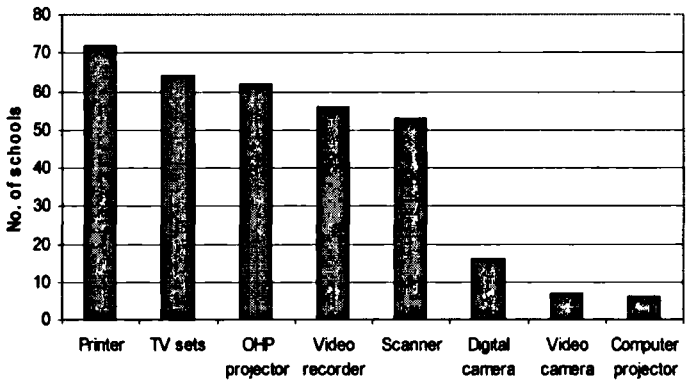

Figure 5.19 – Availability of other equipment in the schools for teaching and administration.

The above figure shows that all 72 schools had one printer (100%), the majority had a TV set (88.9%) and an overhead projector (OHP) (86.1%). More than two thirds of the schools had a video recorder (77.8%) and a scanner (73.6%). On the other hand, there was a substantial lack of other ICT equipment. For example, only 22.2% of schools had a digital camera, 9.7% a video camera and only 8.3% of the schools had a computer projector.

The head teachers of the 72 schools were also asked to indicate whether their schools have ordered any additional ICT equipment. According to the results of their answers presented in Figure 5.20, 41 schools (56.9%) out of 72 have ordered additional equipment.

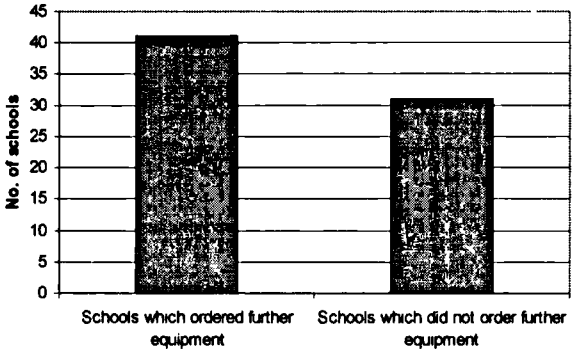

Figure 5.20 – Number of schools did or did not order further equipment.

5.6.2 Software available for teaching and administration purposes

According to Pelgrum and Anderson (2001), the use of ICT in teaching by teachers is not only influenced by the quality and quantity of hardware in schools but also by the quality and quantity of software. In order to examine the situation regarding software in

schools in this study, the head teachers were asked to indicate the type of software available for administration and teaching purposes.

Figure 5.21 shows the percentage of schools and the software they had: word processing (100%), painting or drawing (100%), tools/utilities (98.6%) and spreadsheets (97.2%). These were usually provided within Microsoft office (a bundle of office software). The majority of schools also had educational games software (94.4%), databases (93.1%), subject specific software (90.3%), Word Wide Web (88.9%), presentation software (87.5%) and mailing software (70.8%).

Figure 5.21 also shows that there was Logo software in 62.5% of the schools and desktop publishing in over one third of the schools (44.4%). The rest of the software types were to be found in a small number of schools. For example authoring programmes were available in 26.4% of the schools, simulations in 20.8%, programming languages in 5.6%, music composition software in 13.9% of schools, and measurement software in 1.4% of schools.

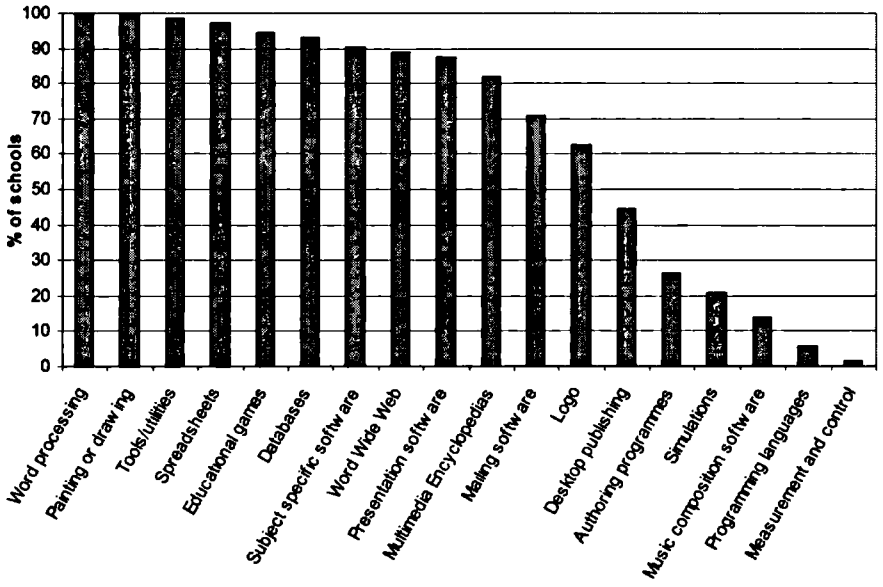

Figure 5.21 – Type of software that was available in the schools for teaching purposes.

With regard to the software available in the 63 schools[1], which had computers for administrative purposes, all schools had word processing (100%), the majority of the 63 schools had all the other programmes shown in the Figure 5.21.

[1] Only 62 of the 72 schools used computers for administration (see Table 5.4).

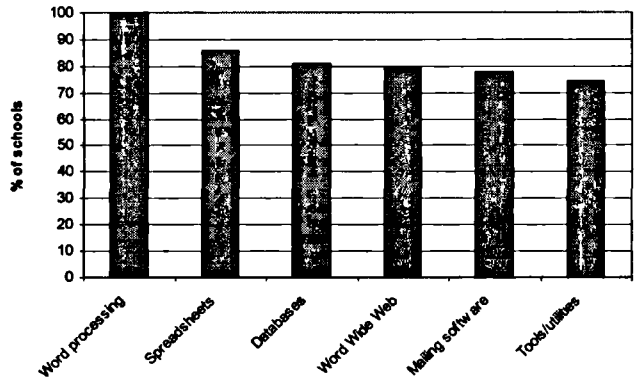

Figure 5.22 – Type of software that was available in the schools for administrative purposes.

Among the 72 schools, only nine reported having created their own software. This software was dealing with environmental education, Olympic Games and various topics in physics, geography and history.

5.7 ICT USE IN TEACHING

In order to investigate whether the 72 Greek primary schools used ICT for teaching purposes, the head teachers were asked to indicate the number of teaching staff that used ICT in their teaching. In addition, they were asked to indicate the type of use of ICT in their schools (i.e. ICT as a separate subject) as well as in which year groups ICT was used. Moreover, the teachers who took part in this research were asked to indicate how often they used ICT in their teaching, how long they have been using ICT, and in which subjects. The results are presented in the following subsections.

5.7.1 Number of teaching staff that used ICT for teaching purposes

Figure 5.23 shows that the percentage of teaching staff that used ICT in these schools varied from 5% (e.g. see School 7) to 100% (e.g. see School 58). In 64 schools (88.9%), the percentage of teaching staff that used ICT in their teaching was under 50% and in the remaining eight schools it was over 50%. Only two schools reported all the teaching staff used ICT (see Schools 58, 65). These schools were in rural areas and only had a teaching staff of two individuals.

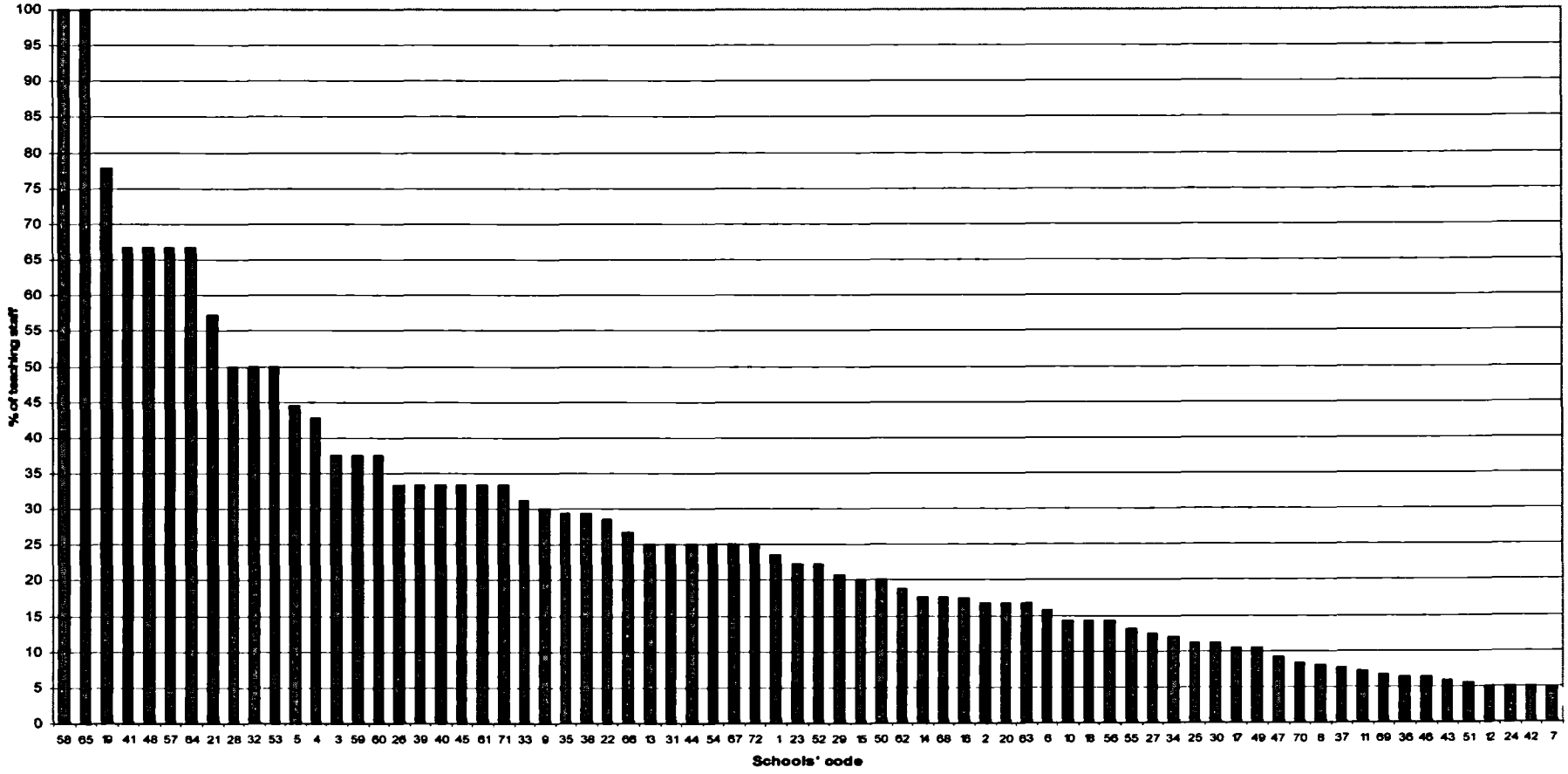

Figure 5.23 – Percentage of teaching staff that used ICT for teaching purposes.

The above results show that in the majority of the 72 Greek primary schools, the number of teaching staff that used ICT in their teaching was small. According to head teachers this is due to the policy of the schools regarding the type of use of ICT. For example, as is presented in Section 5.7.11, some schools had a policy of teaching ICT as a separate subject for the highest age groups only. In these schools, only one or two individuals out of the entire teaching staff used ICT (see for example, Schools 11 and 31 in Figure 5.23).

Other schools had a policy of using ICT as a tool in all subjects for the highest two or three year group classes. Such schools for example were Schools 1, 2, 3, 4 (see Figure 5.23). Therefore, the small percentages of teaching staff of the 72 schools that used ICT in the teaching was due to the policy of schools regarding the use and teaching of ICT for pupils of specific age groups.

5.7.2 Frequency of using ICT in teaching

The 181 teachers that participated in the current research were asked to indicate their frequency of use for each of the 15 forms of ICT in their teaching[1]. Their responses were scored as follows: never=0, about an hour each month=1, about an hour each week=2, several hours a week=3, more than an hour a day=4. An average score (mean) was then derived for each type of ICT in order to compare the frequency of use of the different types.

Figure 5.24, shows that, the form of ICT used most frequently in teaching was word processing. The second and third most frequently used forms of ICT were reported as being art/graphic software and multimedia encyclopaedias. Simulations, music composition software, modelling and desk-top publishing are rarely used by teachers. Use of the measurement and control is also very low.

[1] The frequency of use of the ICT was measured in two phases. In the first phase, in March 2002, the 181 teachers were asked to indicate the frequency of use for each of the 15 forms of ICT in their teaching. In the second phase, in June 2002, the same teachers were asked again to indicate the frequency of use for each of the 15 forms of ICT in their teaching, in the previous three months (March-May 2002). In the second phase answered 175 teachers (see Chapter 4, Section 4.6.7). This section presents the results of the first phase. The results of the second phase were used in Chapter 6 as part of the TRA and TPB (see Section 6.3).

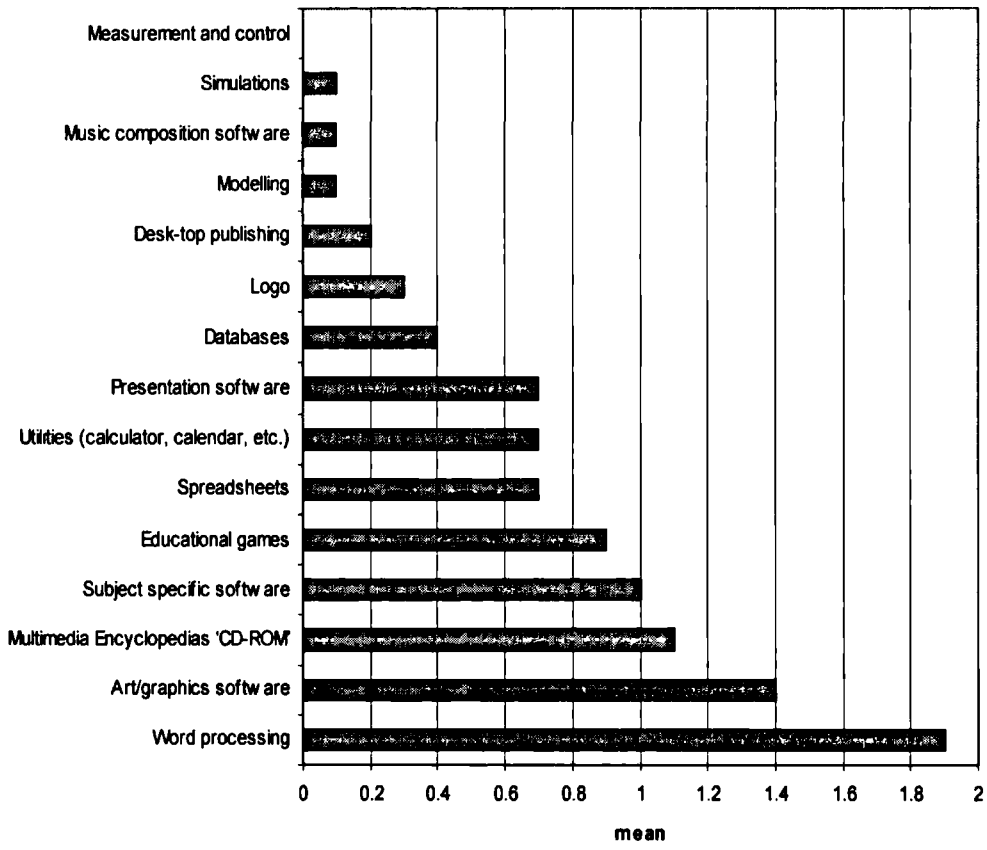

Figure 5.24 – Forms of ICT used in teaching.

A Pearson correlation was used to examine the relationship between teachers' ICT use frequency score in their teaching and their attitudes towards computers. The results of the correlations are presented in Chapter 6 (6.2.13).

5.7.3 Period of time of using ICT in teaching

Teachers were asked to indicate the years that they had used ICT in their teaching. Figure 5.25 presents, the mean score of years of use of the 15 different forms of ICT. This figure shows that word processing and art/graphics software were the forms of ICT which had been used for the longest period of time while modelling, simulations, music composition and measurement and control had been used for only a very short period. The above data were further analysed to find if there was any relationship among teachers' frequency of ICT in their teaching and the number of years that they had used ICT in their teaching.

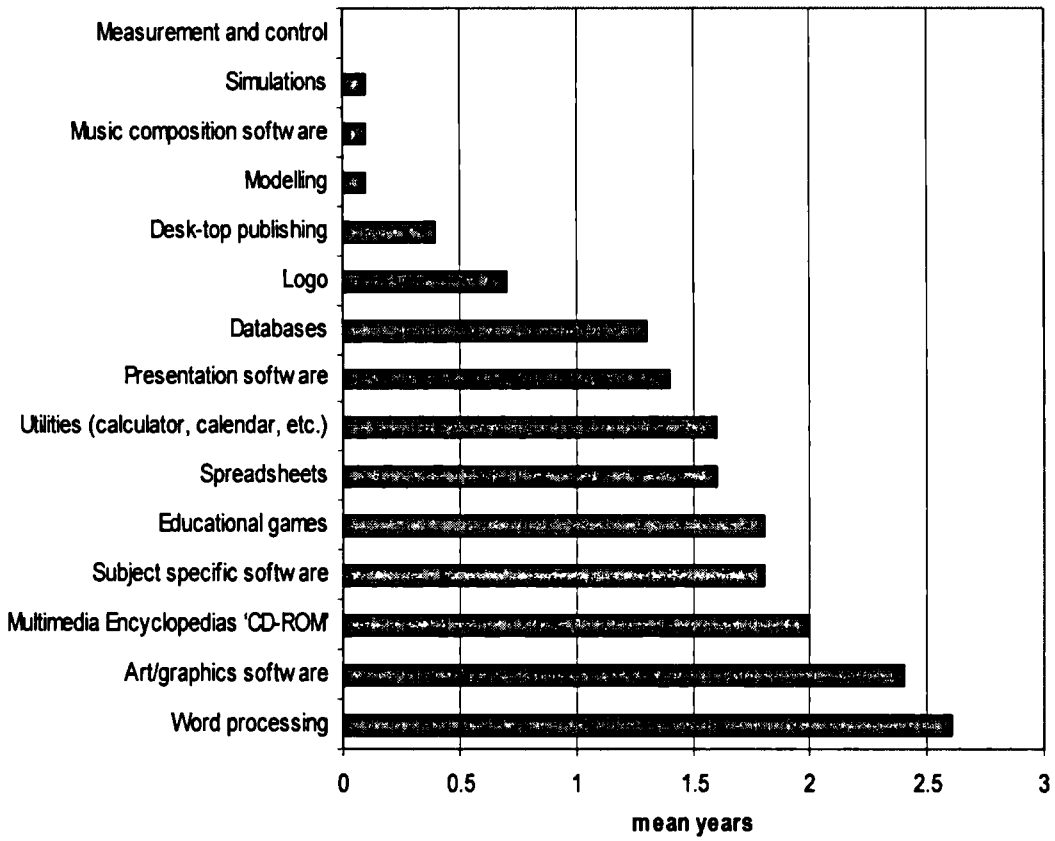

Figure 5.25 – Forms of ICT used in teaching (in years).

This relationship was examined using Pearson correlations (two-tailed). Most specifically, teachers' mean scores (range 1 to 5) of the frequency of ICT in their teaching was correlated with their mean score of years that they had used ICT in their teaching. This correlation is shown in the following table (Table 5.5).

5.5 – Pearson correlation for frequency of ICT use and years of use of ICT.

	Years' of use of ICT score
ICT frequency score	*.483*** *(.000)*

*** Correlation is significant at the 0.01 level (2-tailed).*

The Pearson correlation showed a positive and relatively large correlation (r=+.483, p=.000) between the ICT frequency's score with the years of using ICT score. This correlation indicates that teachers who had been using ICT for many years tended to use it more often than those who only recently started to use ICT. This finding is discussed more in Section 5.11.2.

5.7.4 Using the Internet in teaching

As we have seen in Chapter 1 (see Section 1.3), one of the objectives of the Greek Ministry of Education and Religious Affairs for ICT in education was the connection of all primary schools to the Internet. In Section 5.5.5, the number of the sample schools that had access to the Internet for teaching and administrative purposes was reported. Teachers were also asked whether they had used the Internet in their teaching and, if so, to indicate how often and for how long they have been using it and for what teaching purposes. The results of their answers are presented in the following sections.

5.7.5 Number of teaching staff that used and did not use Internet in teaching

Figure 5.26 below shows that among 181 teachers who participated in the study, 113 (62.4%) used the Internet in their teaching and 68 (37.6%) did not use it.

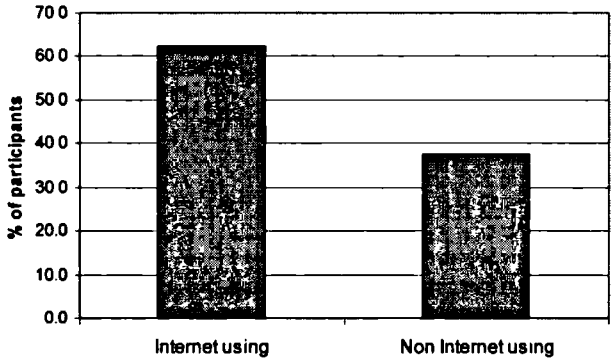

Figure 5.26 – Numbers of teachers who used or did not use the Internet in teaching.

The reasons why 68 teachers (37.6%) did not use the Internet in their teaching varied. An important reason for the teachers of seven schools was that their schools were not connected to the Internet. Other reasons that were mentioned by other teachers were the lack of time in their teaching, their lack of knowledge for using it and for the appropriate educational web sites, the young age of their pupils, the slow speeds of their computers, the difficulty of organisation its use in their teaching as well as the lack of enough computers.

5.7.6 Frequency of using the Internet in teaching

The teachers were asked to indicate the frequency of use of the Internet in their teaching and more specifically email, World Wide Web, user groups and video conferencing[1]. An average score was then derived for each use in order to compare the frequency of use of the different uses of the Internet (see Figure 5.2.7).

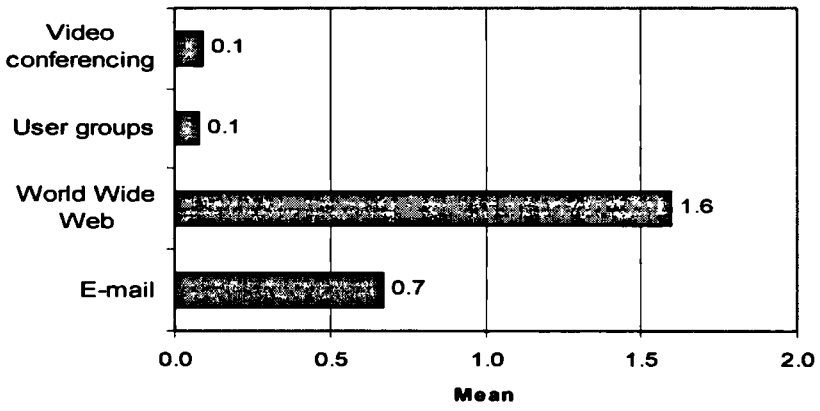

Figure 5.27 – Forms of Internet used in teaching.

Figure 5.27 shows that for most teachers the use of the Internet was restricted to the World Wide Web (M=1.6), followed by e-mail (M=0.7). Teachers rarely used video conferencing (M=0.1) and users groups (M=0.1).

5.7.7 Period of time of using the Internet in teaching

Teachers were also asked to indicate how long they had been using the Internet in their teaching. In order to investigate which of the four different uses of the Internet (e-mail, World Wide Web, user groups, video conferencing), was used for longer or sorter period of time the average years (i.e. mean score) that teachers mentioned for every type of use was calculated. The results are presented in Figure 5.28.

[1] Their responses were scored as follows: never=0, about an hour each month=1, about an hour each week=2, several hours a week=3, more than an hour a day=4.

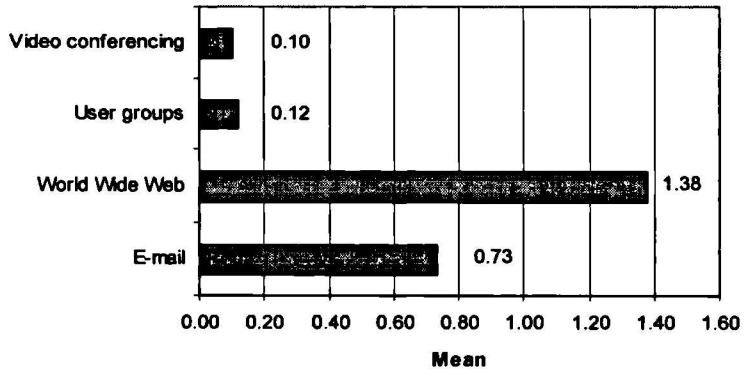

Figure 5.28 – Types of Internet use for teaching (in years).

Figure 5.28 shows that the World Wide Web (M=1.38 years) and e-mail (M=0.76 years) had been used for the longest period of time compared with user groups (M=0.12) and video conferencing (M=0.10) which had been used for the shortest period of time.

5.7.8 Kinds of use of the Internet for teaching purposes

Teachers were also asked to indicate the educational purpose for Internet use. Figure 5.29 shows that the most frequent use was to find out information and obtain resources for lesson preparation and communication with other teachers and pupils via e-mail while the least frequent use was for discussing teaching ideas with fellow teachers and other professionals via discussion groups.

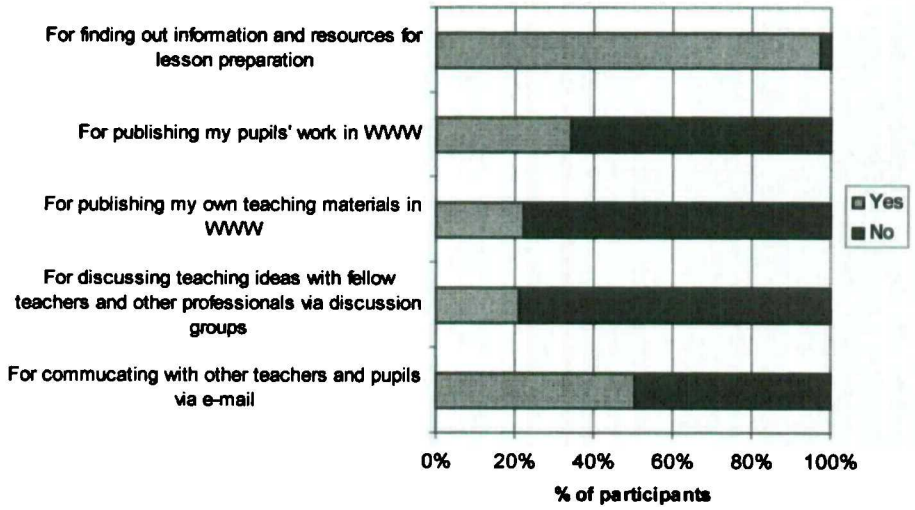

Figure 5.29 – Kinds of Internet using for teaching purposes in school.

There were some teachers who stated that they used the Internet to enable their pupils to participate in Greek and European pupil competitions. The head teachers and teachers were asked to indicate the age group and the number of pupils that used ICT in their teaching. The results are presented in the following two sections.

5.7.9 Number of pupils that used ICT in their lessons

Figure 5.30 shows the percentage of pupils that used ICT in the 72 schools varied from 5% to 100%. There were nine schools reporting that ICT in teaching was used by all pupils (see for example Schools 32, 64 and 65 in Figure 5.30). However, as we have seen in Figure 5.7 (see Section 5.3.2) these schools had a very small number of teaching staff (e.g. two teachers) as well as all of them used ICT in their teaching. On the other hand, there were 17 schools in which ICT was used by more than 50% of pupils (see for example Schools 59, 23 and 35). In addition, Figure 5.30 shows that in the majority of schools ICT was used by only a minority of pupils (see for example Schools 7 and 17).

The above results show that in the majority of the 72 schools, the percentage of pupils that used ICT was low. This was due mainly to the policy of the schools regarding the type of use of ICT (see also Section 5.7.11). For example, School 1 (see Figure 5.30) had participated in the project "The Island of Faiakes" the aim of which was the introduction and the implementation of ICT in the two highest age groups of the school such as ICT tool. Therefore, one would not expect to see in this school all teachers to use ICT in their teaching.

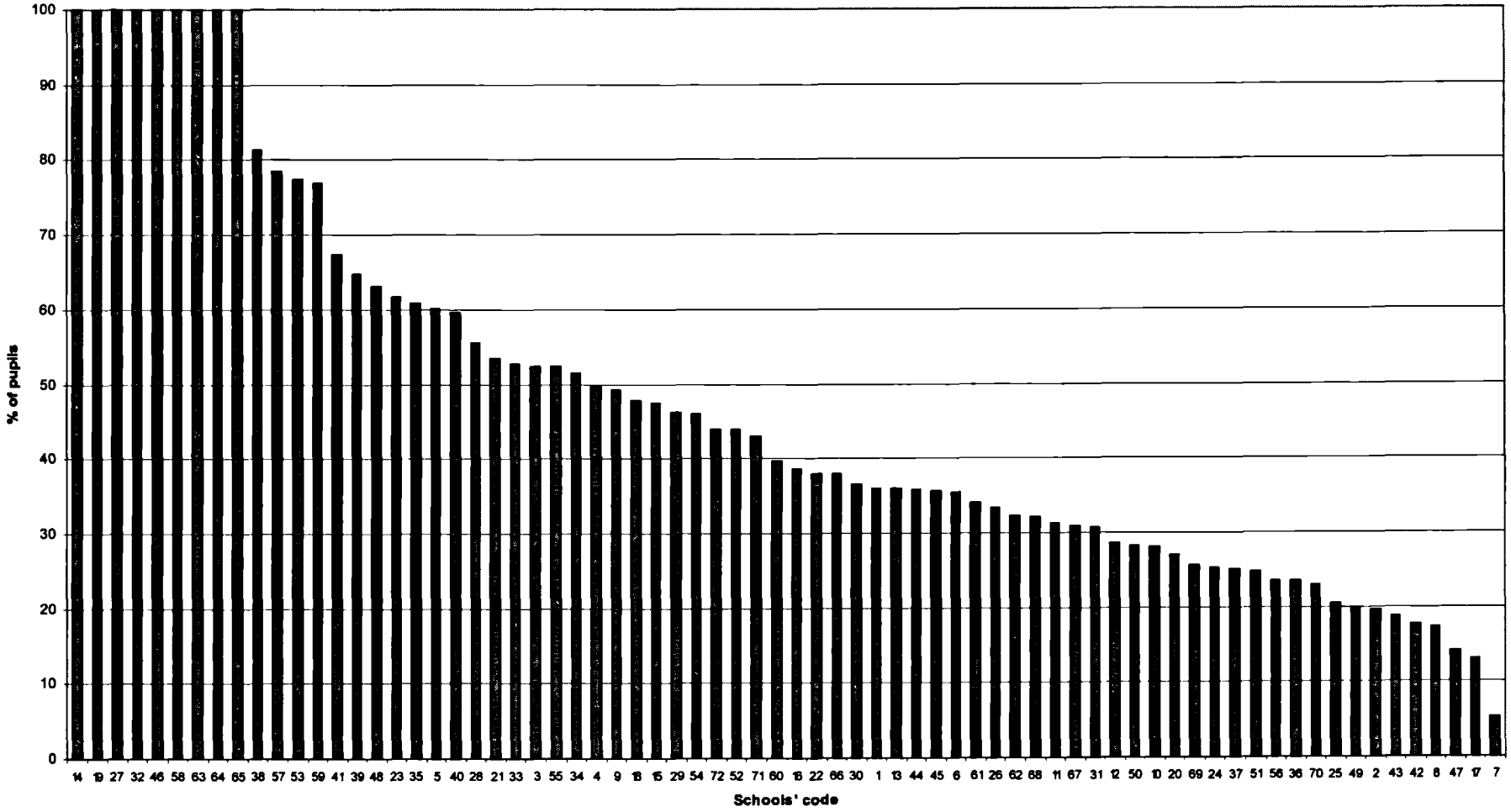

Figure 5.30 – Percentage of pupils that used ICT in their lessons.

5.7.10 Pupil year groups where teachers used ICT

The 181 teachers were asked to indicate the class or classes (age groups) that used ICT in their teaching[1]. Figure 5.31 show that the majority of teachers used ICT in the three highest age groups[2] (i.e. Year 4, Year 5 and Year 6).

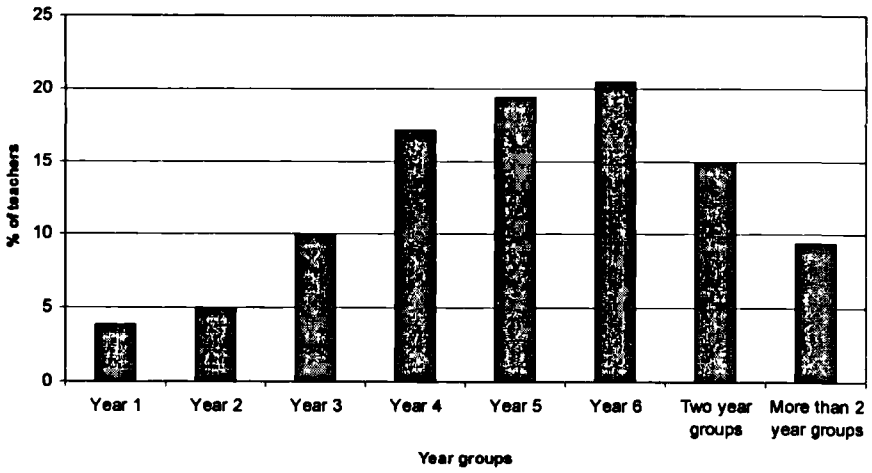

Figure 5.31 – Pupil year groups where teachers used ICT in their teaching.

The fact that the majority of teachers used ICT in the three highest age groups could be explained by the fact that, the 72 schools used in this study introduced ICT in teaching through their voluntary involvement in projects. As was mentioned in the previous section, the policy of many of these projects was the implementation of ICT only in the highest age groups of the schools (e.g. see the aim of the Project "The Island of Faiakes" in Chapter 1, Section 1.3.1).

The above data were further analysed (see Chapter 6) to find out if there was any difference between teachers' attitudes related to the year groups where they used ICT. The results are presented in Section 6.2.10.

[1] By pupil year groups I mean all pupils of a same age within a given school year, as a whole; not taking into account different classes.

[2] In the Greek educational system, pupils start school at 5 plus years old. Therefore, Year 1 includes children between 5 and 6 years of age, Year 2 children between 6 and 7 years of age and so on. The category "Two Year groups" of Figure 5.31 consisted of teachers who taught ICT in two Year groups (e.g. Year 5 and Year 6). The category "More than 2 year groups" of Figure 5.31 consisted of teachers who taught ICT in three year groups or more (e.g. Year 1, Year 2 and Year 5). This happens mainly in schools with a small number of pupils.

5.7.11 Type of use of ICT in schools

Head teachers were asked how ICT was used in their schools. Figure 5.32 shows that 40 (56%) schools reported that ICT was used as a tool across the curriculum and 18 (25%) reported that ICT was taught as a separate subject. There were 14 (19%) schools which reported that ICT was taught as a separate subject and used across the curriculum.

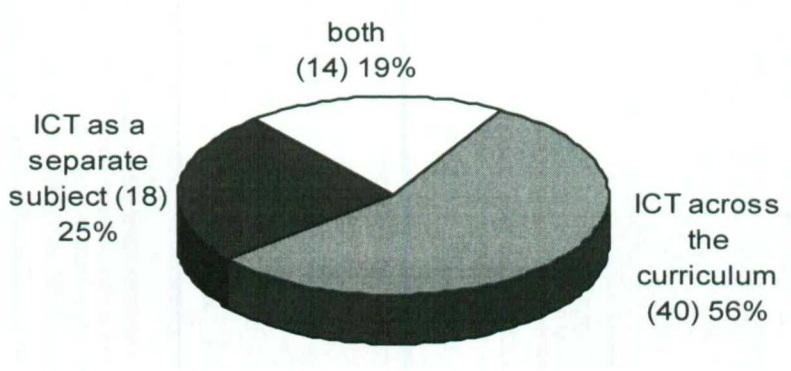

Figure 5.32 – Type of use of ICT in schools.

In order to find if there was a significant difference between teachers' frequency of ICT use in teaching and their type of ICT use in their teaching a one way analysis of variance was conducted (One Way ANOVA). As we have seen in Section 5.7.2 there were 15 items measuring teachers' frequency of ICT in their teaching. Their responses (range none=1 to more than an hour every day=5) were summed so that higher sums indicated greater frequency of use; thus the lowest possible score on ICT frequency score was 15 and the highest 75. Table 5.6 below shows the descriptive summary of the results with the mean ICT frequency scores, the standard deviation and the range of scores (minimum and maximum). Table 5.6 shows that teachers in the group of using ICT as a tool had a mean frequency score 23.89 (*SD*=6.286), teachers in the group of using ICT as a subject 26.52 (*SD*=8.437) and teachers in the third group (combined use) had a mean frequency score of 26.53 (*SD*=7.816).

Table 5.6 - Descriptive statistics of school's ICT type of use and teachers' frequency of ICT use in their teaching.

ICT type	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ICT as a tool	126	23.89	6.286	.560	22.78	25.00	17	49
ICT as a subject	25	26.52	8.437	1.687	23.04	30.00	18	59
Both	30	26.53	7.816	1.427	23.61	29.45	17	51
Overall	181	24.69	6.946	.516	23.67	25.71	17	59

Table 5.7 - One way analysis of variance (Anova) of school's ICT type of use and teachers' frequency of ICT use in their teaching.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	266.523	2	133.261	2.818	.062
Within Groups	8418.151	178	47.293		
Overall	8684.674	180			

* Not significant (p>.05)

Table 5.7 shows sums of squares, degrees of freedom (df), mean square, observed F ratio and p value for the analysis. The F value of 2.818, and the *p* value of .062 (p=.05), in Table 5.7 shows there was no difference among the ICT frequency score of teachers in the three categories of ICT type of use.

The data concerning the type of use of ICT in schools were further analysed in Chapters 6 (see Section 6.2.8) and 7 (see Section 7.2.7) in order to examine the differences in teachers' and head teachers' attitudes towards computers. The following section presents the use of ICT at home.

5.8 USE OF ICT AT HOME

As we have seen in Chapter 4, Section, 4.6.1.1.3 respondents were asked a number of questions related to the use of ICT at home, such as the frequency of use, how long they have been using it, and how frequently they checked their e-mail. The results of their answers are presented in the following sections.

5.8.1 Access to a computer for personal use at home

Teachers, head teachers, district officers and school counsellors were asked whether they had access to a computer for personal use outside of the work place. The results of their answers are presented in Figure 5.33 and show that almost two thirds (64%) of the respondents had access to computers at home.

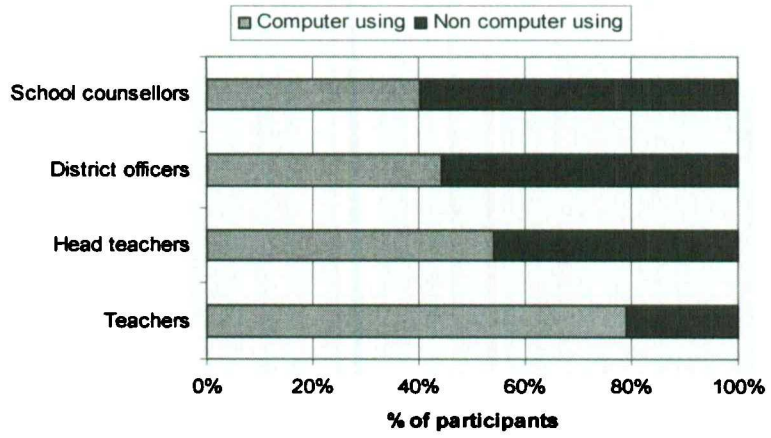

Figure 5.33 - Percentage of participants who had or did not have computers at home.

The majority of teachers (79%), 54% of head teachers, 44% of district officers and 40% of school counsellors had access to a computer at home.

Data were also analysed in order to find any differences between teachers' frequency of ICT use in teaching related to their access to a computer for personal use at home. Table 5.8 below shows a summary of the descriptive statistics for teachers who had access to a computer and for teachers that did not have access to a computer. As can be seen from Table 5.8, the teachers with access to a computer had a higher mean (M=25.66, SD=7.225) than the teachers without access to a computer.

Table 5.8 - Descriptive statistics of teachers' access to a computer for personal use at home and frequency of ICT use in their teaching.

	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Access to a computers	143	25.66	7.225	.604	24.46	26.85	17	59
No access to a computer	38	21.05	4.146	.673	19.69	22.42	17	33
Overall	181	24.69	6.946	.516	23.67	25.71	17	59

Table 5.9 - One way analysis of variance (Anova) of teachers' access to a computer for personal use at home and frequency of ICT use in their teaching.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	636.570	1	636.570	14.158	.000*
Within Groups	8048.105	179	44.961		
Overall	8684.674	180			

* Significant (p<.05)

Table 5.9 shows the results of one way ANOVA to investigate the differences in teachers' frequency of ICT related to their access to a computer at home. This table shows that F value was 14.158, and the *p* value was .000 ($p<.05$). This means that the teachers with access to a computer at home used ICT significantly more often in their teaching than the teachers without access to a computer at home.

A one way ANOVA was also conducted to determine if there was any difference between respondents' access to a computer for personal use at home and their attitudes towards computers. The findings are presented in Sections 6.2.7 (see Chapter 6) and 7.2.9 (see Chapter 7).

5.8.2 Computer ownership and types of computers used at home

Figure 5.34 shows that the majority of the respondents' home computer was owned by themselves. The rest of them reported that it was owned by their partner, their children or their brothers or sisters.

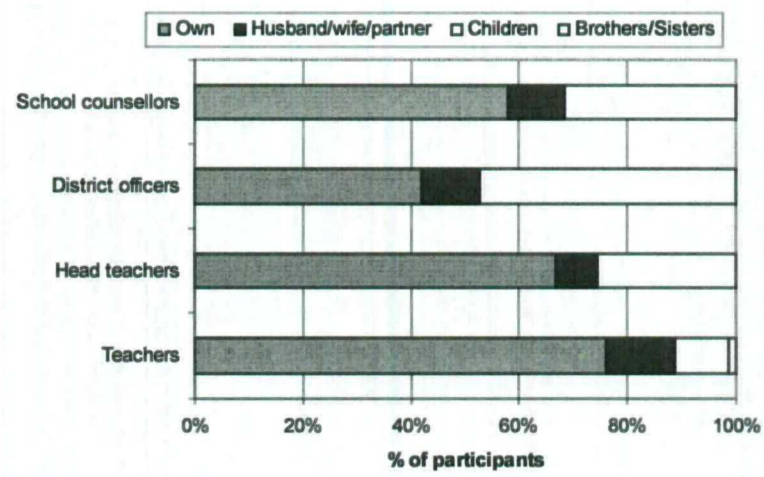

Figure 5.34 - Ownership of home computers.

The respondents were also asked to indicate the type of computer they used at home. Figure 5.35 shows that the majority of respondents (85%) used a Desktop PC at home. There was a small percentage of teachers and head teachers (7%) who used a laptop as well as a small percentage (19%) that had more than one computer (Desktop PC and Laptop).

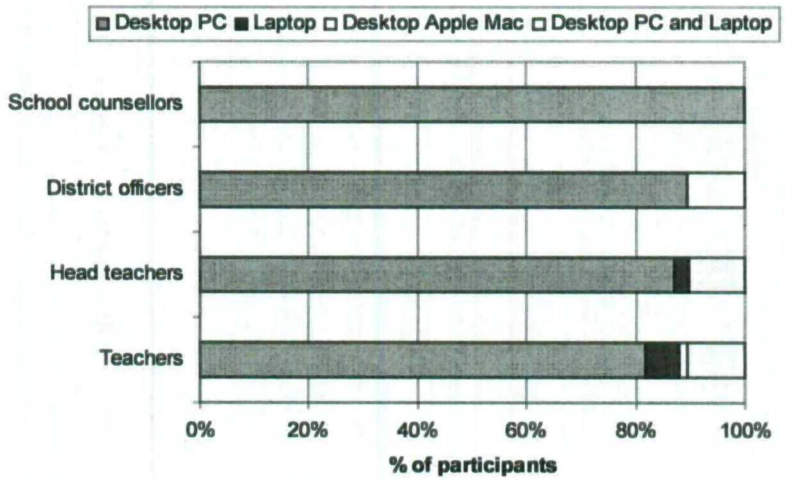

Figure 5.35 – Type of computers used at home.

In the following sections the data related to the frequency and time spent using ICT at home by teachers, head teachers, district officers and school counsellors are presented.

5.8.3 Frequency of using ICT at home

The teachers, head teachers, district officers and school counsellors who had access to a computer at home were asked to indicate their frequency of using ICT (Word processing, spreadsheets, databases, desk-top publishing, art/graphics software, e-mail, World Wide Web, games) for personal purposes outside of their work place[1].

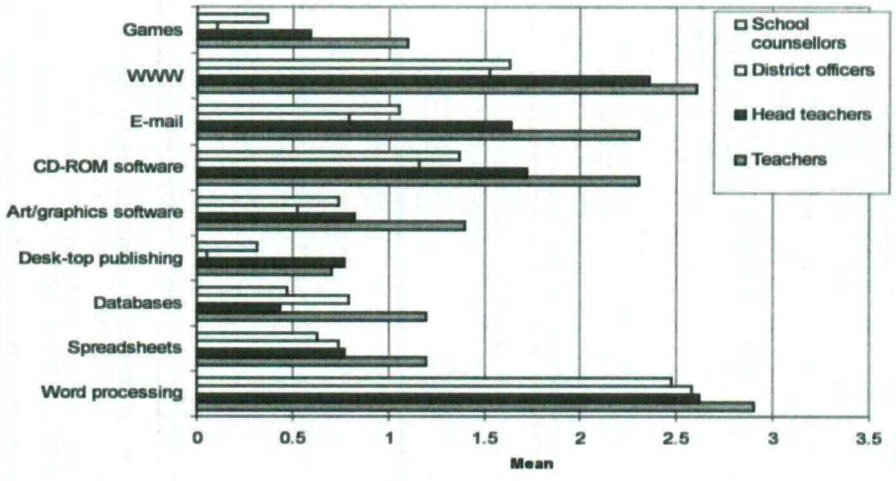

Figure 5.36 – Forms of ICT used at home.

[1] Their responses were scored as follows: never = 0, about an hour each month = 1, about an hour each week = 2, several hours a week = 3, more than an hour a day = 4. An average score was then derived for each form in order to compare the frequency of use of the different forms of ICT.

Figure 5.36 shows that ICT use outside of the work place occurred most often with teachers followed by head teachers. The greatest use was for word processing, followed by World Wide Web, e-mail and CD-ROM software.

5.8.4 Period of time spent using ICT at home

Apart from the frequency of using ICT, the respondents were asked how many years they had used ICT at home. Figure 5.37 shows that the form of ICT which had been used for the longest period of time by all respondents was word processing (M=2.5 years), followed by CD-ROM software (M=1.8 years), art/graphic software, World Wide Web (M=1.5 years), spreadsheets (M=1.3 years), databases, e-mail, games (M=1.1 years).

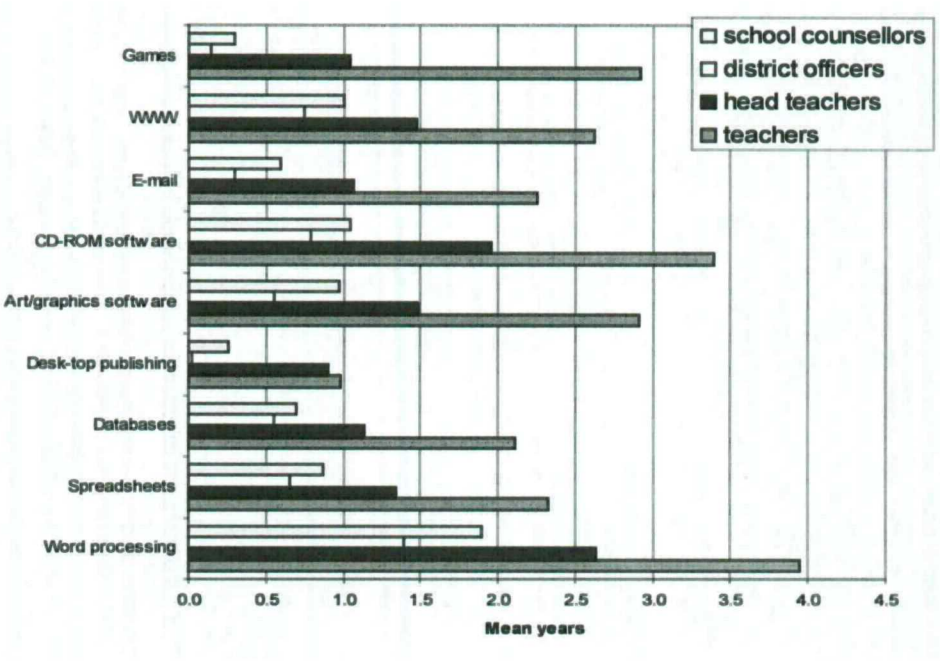

Figure 5.37 – Forms of ICT used at home (in years).

The software used for the smallest period of time was desk-top publishing (M=0.5 years). Figure 5.37 also show that teachers had been using ICT for more years than head teachers (M=1.3 years), district officers (M=0.62 years), and school counsellors (M=0.77 years).

5.8.5 Access to the Internet for personal use at home

Among 223 respondents who had a computer at home, 181 (78%) had access to the Internet. Figure 5.38 shows the percentage of teachers, head teachers, district officers and school counsellors that had access to the Internet at home.

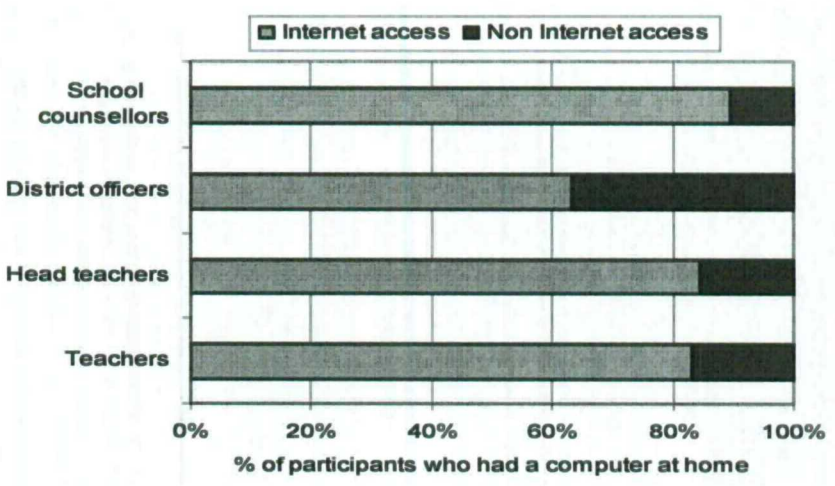

Figure 5.38 - Percentage of participants with access to the Internet at home.

Figure 5.38 shows that the majority of teachers (83%), head teachers (85%) and school counsellors (89%) who had a computer at home had access to the Internet. On the other hand, fewer district officers (65%) who had a computer at home had access to the Internet.

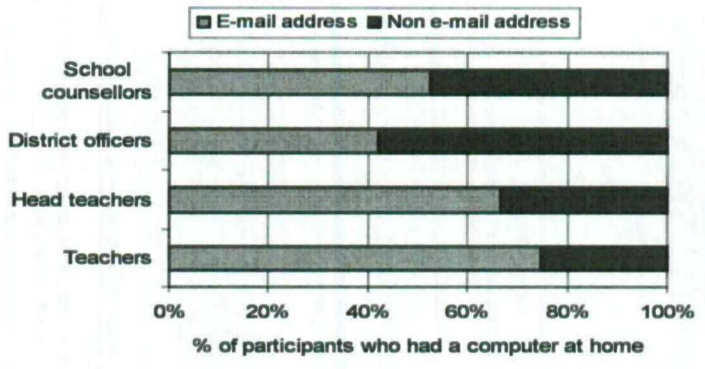

Figure 5.39 - Percentage of participants who had or did not have e-mail address.

Figure 5.39 shows that 68.6% of respondents who had a computer at home also had access to e-mail, e.g. 74.8% of teachers and 42.1% of district officers.

The respondents were also asked to indicate how often they check their e-mail. Figure 5.40 below shows the frequency of checking e-mail by each group of educators. More

specifically, Figure 5.40 shows that the majority of teachers and head teachers who had e-mail checked it every other day or every day while the majority of district officers and school counsellors checked it once/twice a month or once a week.

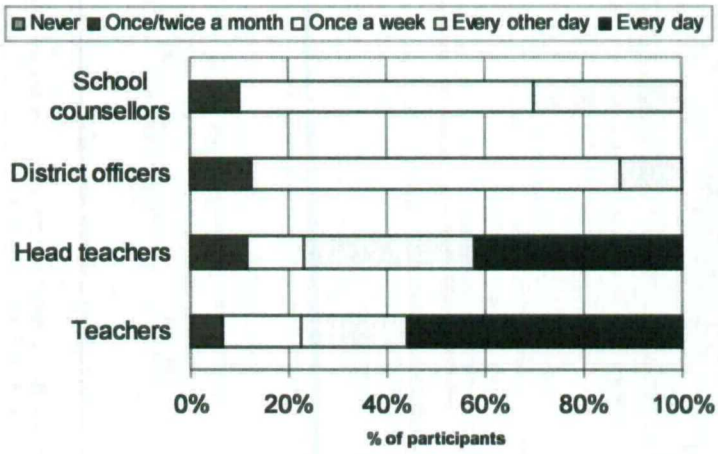

Figure 5.40 – Frequency of checking e-mail.

Figure 5.41 below shows that those who checked e-mail more frequently were teachers (M=3.3) and head teachers (M=3.1), compared with school counsellors (M=2.2) and district officers (M=2).

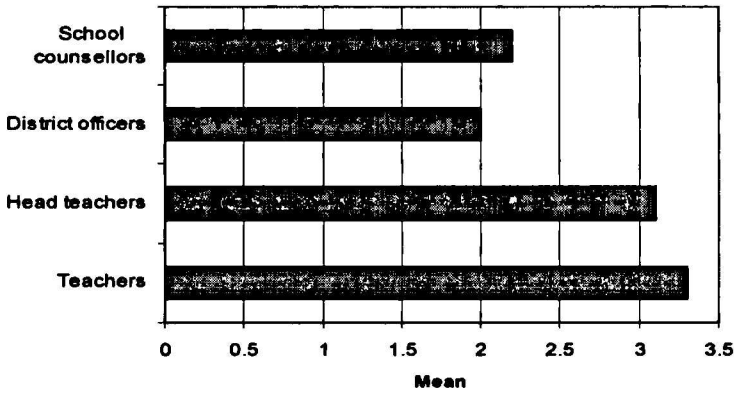

Figure 5.41 – Mean score of frequency of checking e-mail.

5.9 PROFESSIONAL DEVELOPMENT

Staff development is a basic and necessary component of the continuing education of teachers, administrators and other staff (Fullan, 2001). Previous research, for example Pelgrum and Plomp (1993), has shown that the introduction and implementation of ICT in schools is dependent upon the training that teachers had received. More specifically, Preston et al., (2000), maintained that "the effect of in-service training about the uses of ICT in teaching on subsequent practice depends upon the type, length and location of the course attended" (p. 48). In order to examine the relationship between teachers', head teachers', district officers' and school counsellors' training received and their attitudes towards computers, a number of questions about professional development were included in the questionnaires.

The respondents were asked to indicate the number of hours and the type of training received (i.e. initial awareness course, short special course, advanced course, working conference, longer award bearing course) in four different locations (i.e. in my school, in university, LEA Centre, public and private institutes).

The number of hours in each type of training was summed for each participant in order to see the total number of training hours that he/she had received. Figure 5.42 shows the distribution of the number of hours of ICT training which the sample had received.

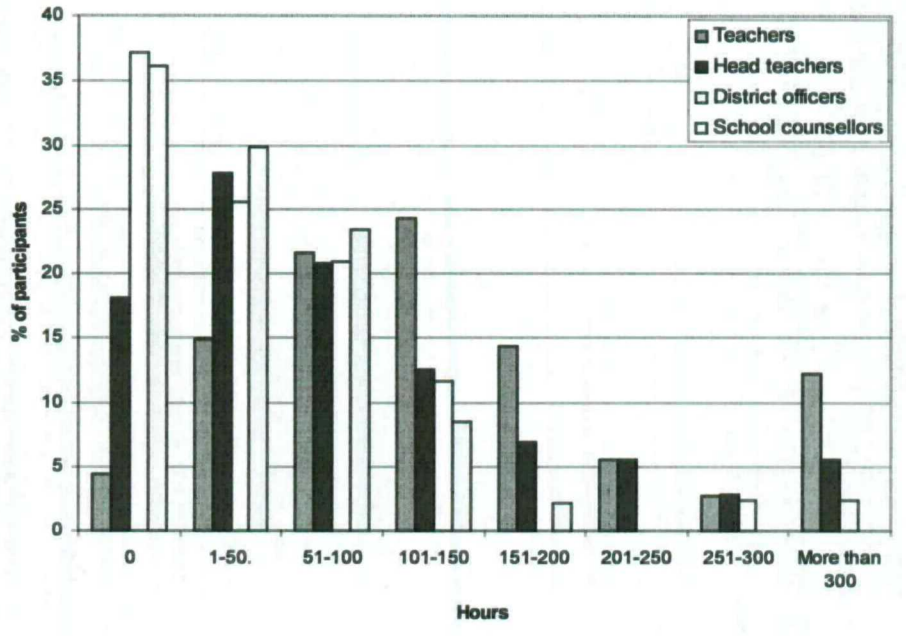

Figure 5.42 – Number of hours of training received.

Figure 5.42 shows that the majority of teachers and head teachers had received some training in ICT varying from 1 to 150 hours. Moreover there were eight teachers (4%), 13 head teachers (18%), 16 district officers (37%) and 17 school counsellors (36%) who had not had any training at all. Figure 5.42 also shows that teachers have had more hours of training in ICT than district officers and school counsellors who were once teachers. This is because ICT has only been in primary schools for a few years. Therefore, district officers and school counsellors did not have the opportunity to attend more training than teachers in their schools.

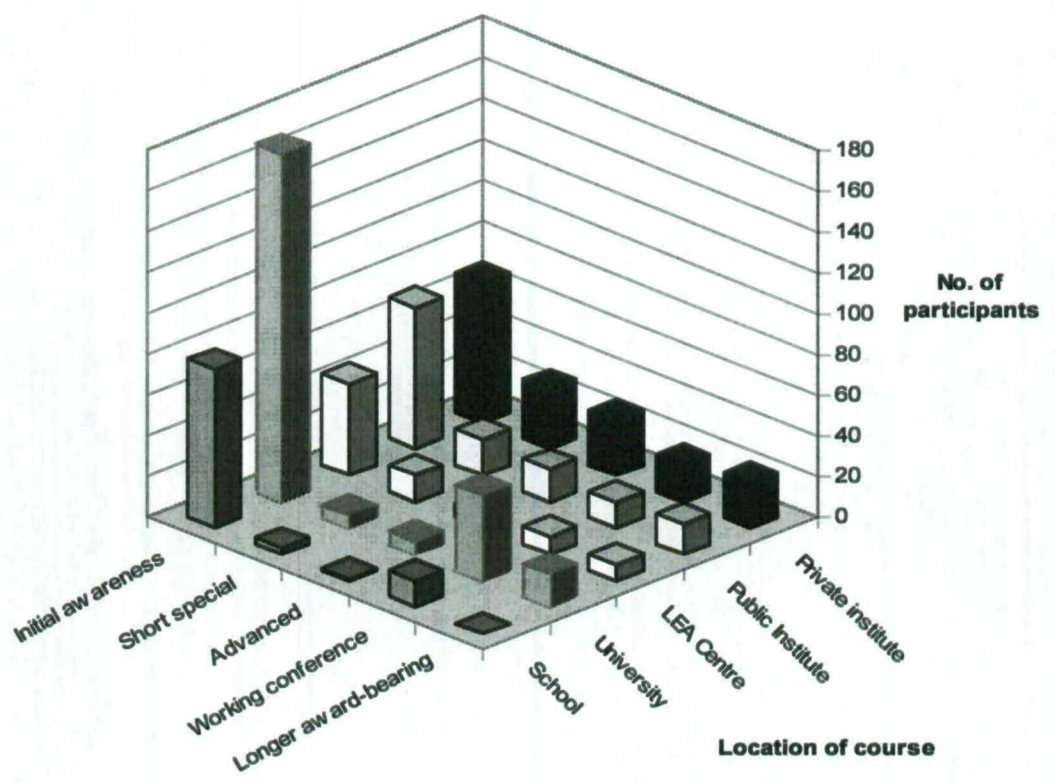

Figure 5.43 - Number of participants who have attended one or more of each form of training course.

Figure 5.43 shows the types of training courses attended by the respondents and where they were located. Figure 5.43 shows that the most popular course was initial awareness at University. Figure 5.43 also shows that only a small number of educators had attended a longer award bearing course. Rhodes and Cox (1990) showed that short training courses such as initial awareness courses were inadequate to enable teachers to use computers very often in their teaching.

This study analysed the relationship between teachers' training score and frequency score of ICT in teaching. In order to find the strength of association between these two variables, the Pearson correlation was used. A training score for each teacher was calculated by summing the number of hours of computer training they had attended. Table 5.10 shows a Pearson correlation of $p<0.05$ (i.e. p=.043), indicating a significant degree of positive relationship between training score and frequency score ($r=+151$).

Table 5.10 – Pearson correlation for frequency of ICT use and training about computers.

	Training score
ICT frequency score	*.203*** *(.006)*

*** Correlation is significant at the 0.01 level (2-tailed).*

This correlation result shows that those teachers who had received many hours of computer training tended to use ICT more often in their teaching. This finding is discussed in Section 5.11.4 of this chapter.

The computer training' data were further analysed to find if there was any relationships among teachers', head teachers', district officers' and school counsellors' attitudes towards computers and their computer training perceived. The results of these relationships are presented in Chapter 6 (see Section 6.2.12) and 7 (see Section 7.2.11).

5.10 COMPUTER KNOWLEDGE AND SKILLS

The respondents were asked to indicate their knowledge and skills of computers, answering a number of questions. The questions consisted of four categories of questions and items (see Section 4.6.1.1.2, Chapter 4). The first category included two general questions, one referring to the knowledge of computers and the second to extent of programme use[1]. The second category included 10 items that referred to specific knowledge concerning computers[2]. The third category included 10 items that referred to the respondents' ICT skills. The fourth category included 10 items that referred to the

[1] In the first question the answers of respondents were scored as follows: none = 0, a little = 1, average = 2, quite a lot = 3 a lot = 4 while the answers of the second question were scored as follows: no good = 0, weak = 1, average = 2, quite good = 3 very good = 4.

[2] In this category of questions the answers were scored as follows: none = 0, a little = 1, quite a lot = 2, a lot = 3.

ability of using computers in teaching[1]. This category of items was answered only by teachers.

In order to examine respondents' knowledge for each of the 32 questions/items a mean score for each question/item was also calculated (the score was 0-4 for the two first questions and 0-3 for the remaining questions). In general, a higher mean score in each knowledge's question/item corresponds to more knowledge about computers while a low score indicates less knowledge about computers. The results of this analysis are presented in Figures 5.44, 5.45 and 5.46.

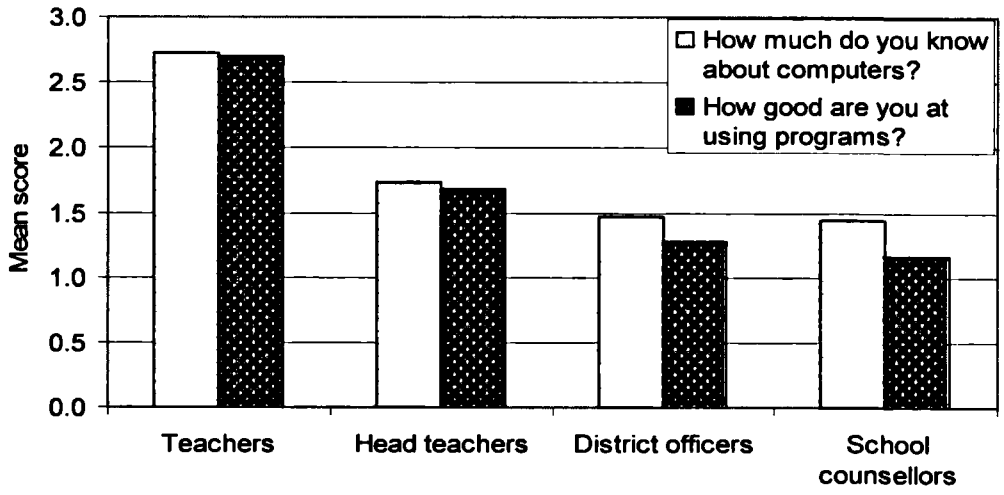

Figure 5.44 – Respondents' answers to the questions "How much do you know about computers?" and "How good are you at using programs?".

Figures 5.44, 5.45 and 5.46 show that teachers and head teachers scored higher on the majority of knowledge questions than district officers and school counsellors indicating that these educators had more knowledge and skills about computers. Figure 5.44 shows that all groups had higher mean scores for the question "How much do you know about computers?" compared to the question "How good are you at using programs?".

Figure 5.45 shows that the teachers had a relatively high level of knowledge about "the difference between 'RAM' and 'ROM'", "what a relational database is like" as well as about the "difference between the operating system and an application package". Furthermore, they scored relatively low for questions such as "What a loop means in

[1] In third and fourth category of questions the answers were scored as follows: not at all = 0, a little = 1, well = 2, very well = 3.

programming" and "What file extensions are". Head teachers, district officers and school counsellors had low scores for the majority of knowledge items compared with teachers.

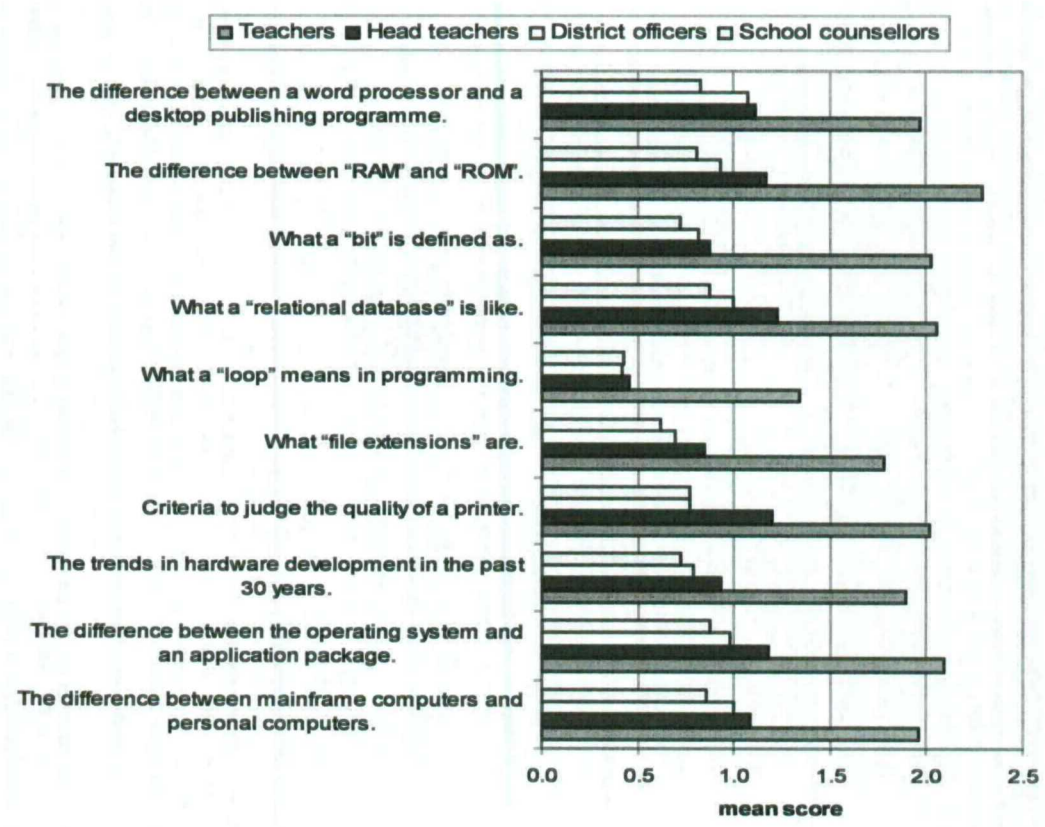

Figure 5.45 – Respondents' knowledge concerning computers.

Figure 5.46 shows respondents' basic ICT skills. The results show that the majority of teachers was able to perform a wide range of tasks indicating that these had higher level of ICT skills in relation to head teachers, district officers and school counsellors. Figure 5.46 also shows that there were two items that were rated relatively low by the respondents. One of these items related to virus checking and the other one to "connect computer to external devices". These findings indicate that the respondents had a low level of skills about these two tasks.

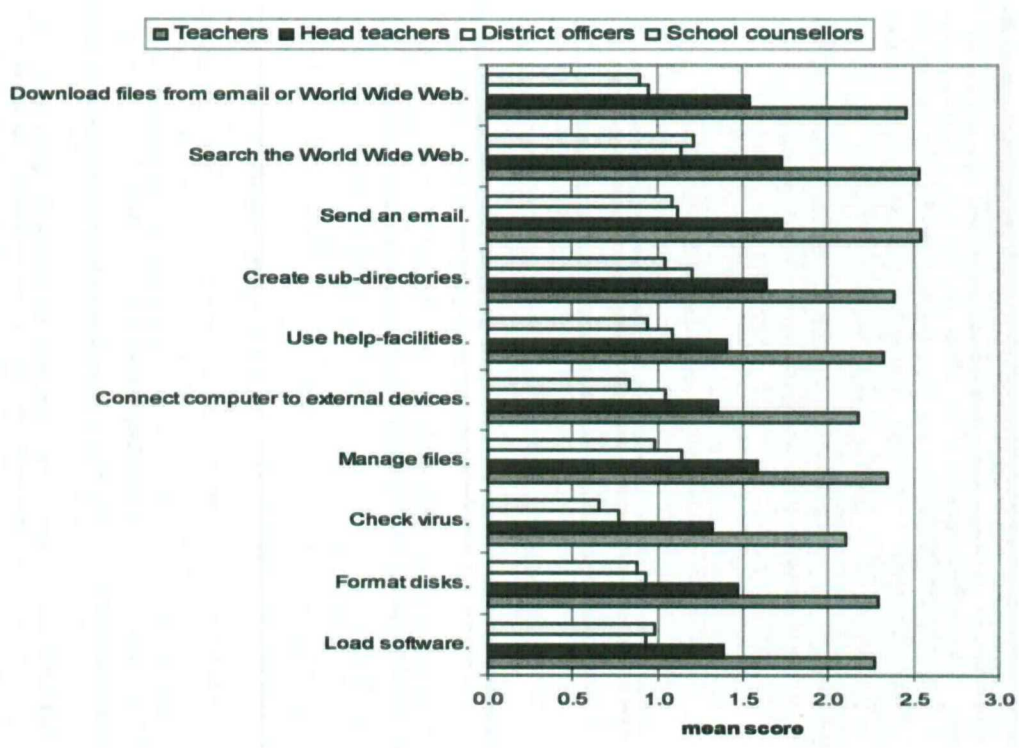

Figure 5.46 – Respondents' ICT skills.

Figure 5.47 below shows the mean score of teachers for each knowledge item of the fourth category (i.e. questions that refer to the ability of using ICT in teaching). As we can see in Figure 5.47 the mean for the ten items ranged from 0.9 (see "Using advanced modelling software for teaching modelling skills and concepts" item) to 2.5 (see "Writing courseware for my own lesson" item). Teachers had relatively high mean scores (higher than 2.0) on nine of ten knowledge items indicating that on average they had relatively high level of knowledge and ability to use specific types of ICT in their teaching. On the other hand, teachers scored very low on the item "Using advanced modelling software for teaching modelling skills and concepts". In addition, as we have seen in Section 5.7.2 teachers also had low scores for all types of ICT except word processing, art/graphics, and CD-ROM (see Figure 5.25), indicating a low level of knowledge of several other type of software in their teaching. This supports the earlier findings of Preston et al., (2000) who found that over 75% of ICT teachers in England only used word processing more than once a week. The nine knowledge items referred to above (see also Figure 5.47) represented only a narrow range of ICT skills similar to those identified used by teachers in a recent literature review by Cox and Webb (2004).

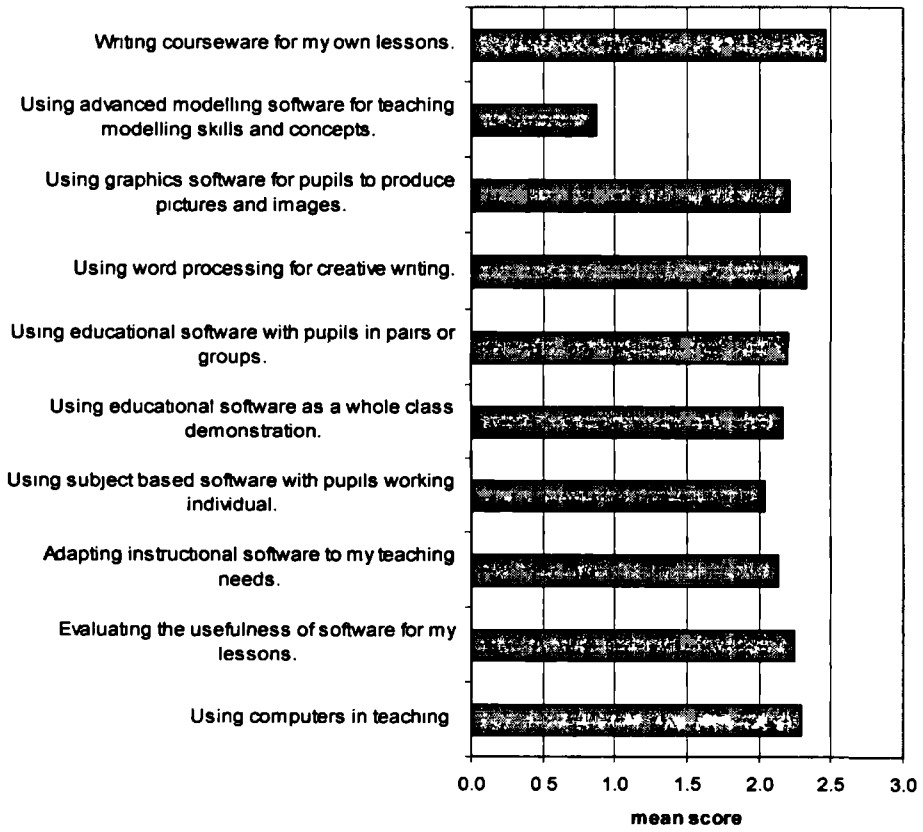

Figure 5.47 – Teachers' knowledge about the use of ICT in teaching.

This study, examined the relationships between respondents' computer knowledge score (i.e. knowledge concerning computers' score, ICT abilities score and knowledge about the use of ICT in teaching) about computers, and their training score (see Section 5.9). Pearson's correlation was used to examine these relationships. For each of the 30 items the responses were coded 1 for "none" to 4 for "a lot" (see Chapter 4, Section 4.7.3.2). Table 5.11 shows the results of the Pearson correlation.

Table 5.11 – Pearson correlation for training about computers and knowledge about computers.

	Knowledge concerning computers score	***ICT abilities score***	***Knowledge about the use of ICT in teaching score***
Training score	*.297*** *(.000)*	*.180*** *(.002)*	*.232*** *(.002)*

Correlation is significant at the 0.01 level (2-tailed).

As can be seen from Table 5.11, the results showed that the training score correlated statistically significantly with the three categories of knowledge scores. However, the correlations were small. These correlations indicate that teachers with more hours of computer training tend to have more knowledge about computers.

A Pearson correlation was also used to examine the relationship between teachers' frequency ICT score with the score of the above three categories of knowledge (i.e. knowledge concerning computers' score, ICT abilities' score and knowledge about the use of ICT in teaching). The results of these correlations are shown in Table 5.12.

Table 5.12 – Pearson correlation for frequency of ICT use and knowledge about computers.

	Knowledge concerning computers score	***ICT abilities score***	***Knowledge about the use of ICT in teaching score***
ICT frequency score	*.463*** *(.000)*	*.424*** *(.000)*	*.458*** *(.000)*

Correlation is significant at the 0.01 level (2-tailed).

Table 5.12 shows that the ICT frequency score positive correlated with all three categories of knowledge. Therefore, these correlation results show that the teachers who had more knowledge about computers were likely to use ICT more frequently in their teaching. However, because the Pearson correlation does not imply causation the above results may mean that teachers who use ICT more frequently in their teaching have more knowledge about computers. The above results are discussed in Section 5.11.4 of this chapter. This study, moreover, analysed the relationships between respondents' knowledge score about computers and their attitudes towards computers. The results of this analysis are presented in Chapters 6 (see Section 6.2.11) and 7 (see Section 7.2.10).

5.11 DISCUSSION AND CONCLUSIONS

As we have seen in Chapter 4 (see Section 4.2) one of the objectives of this study was to investigate the uptake of ICT in the 72 Greek primary schools. Firstly, this chapter presented the demographic characteristics of the questionnaire sample. Secondly, this chapter presented the current situation of the use of ICT in schools. The main conclusions that were drawn from this chapter are presented and discussed in the following sections.

5.11.1 Hardware and software availability

As we have seen in Section 5.4, the schools of this study introduced and implemented ICT in teaching and administration through various pilot programmes and projects. In general, the majority of these schools had only been using ICT for teaching and administration for a few years.

As shown in Section 5.5.1, there was a considerable variation between schools with respect to the availability of the number of computers for teaching purposes. This section also showed that the pupil/computer ratio varied from 3.8 pupils to 65 pupils per computer. More specifically, the pupil/computer ratio tended to be low in schools with a small number of pupils. However, as was mentioned in Section 5.5.1 the fact that the pupil/computer ratio was low in some schools did not imply that the teaching staff and pupils had frequent access to the use of ICT all the time. In addition, this chapter showed that in the majority of schools, computers were located in specific computer rooms. The high pupil/computer ratio and the location of computers in specific computer rooms implies that the current hardware situation in the majority of schools does not allow all pupils to use ICT in their teaching very often as well as not allowing teachers to use ICT across the curriculum.

From Section 5.6.2 it can be concluded that general purpose software, such as word processors, painting or drawing, spreadsheets, World Wide Web and Logo was available in the majority of schools. On the other hand, there was a lack of simulations and measurement and control software in the vast majority of schools. This lack of software as is discussed in the following section led to teachers rarely using these types of software.

5.11.2 Use of ICT in teaching

In most schools only a small number of teachers and pupils were using ICT in teaching. Most specifically, the majority of teachers used ICT with the three highest age groups (i.e. 10 to 12 years old). Forty (46%) schools reported that ICT was used as a tool across the curriculum, 18 schools (25%) as a separate subject while 14 schools (19%) was used either as a separate subject or across the curriculum. However, the one way ANOVA results in Section 5.7.11 showed that there were no statistically significant differences among the frequency of teachers' use of ICT in the three different categories of ICT type of use.

Section 5.7.2 showed that for most teachers the use of ICT was restricted to word processing, followed by art/graphics software and multimedia encyclopaedias "CD-ROM". Simulations, modelling, music composition software and measurement and control were rarely used by teachers. This low use can be explained by the fact that these types of software were available only in a very small number of schools (see Section 5.6.2). Section 5.7.3 also showed that word processing was the form of ICT which had been used for the longest period of time while measurement of control had been used for only a very short period of time. In addition, the results of this section showed that there was a positive and statistically significant correlation between teachers' frequency of ICT use in teaching and their years of use of ICT in teaching. In other words, this finding means that teachers who used ICT many years in their teaching tend to use ICT more often in their teaching. This finding is supported by other research findings where there was a positive correlation shown between teachers' use of ICT in their teaching and the years that used ICT in teaching (Reinen and Plomp, 1993).

Section 5.5.5 showed that the large majority of the schools (90.3%) reported having access to the Internet. In general, teachers used the Internet to conduct a number of teaching tasks (e.g. for finding out information and resources for lesson preparation, for publishing their pupils' work on the World Wide Web) and communicative tasks (e.g. communication with other teachers and pupils). However, the mean score of use of the Internet in teaching was very low. Teachers in seven schools did not use the Internet because of the non availability of Internet access. In addition, many teachers reported that they did not use the Internet very often because of reasons such as lack of time and lack of knowledge about how to use it. This means that teachers, will be more likely to integrate the Internet in their teaching if they have the appropriate skills to use it as well as if they have access to adequate equipment and connections.

In general, the above findings agree with the findings of other surveys of primary and secondary teachers which reported low levels of use of ICT in teaching (e.g. Williams et al., 2000), and narrow and limited use of a range of ICT resources (Cox and Abbott, 2004; Cox and Webb, 2004).

5.11.3 Use of ICT at home

The results presented in this chapter showed that the majority (79%) of teachers, 54% percent of head teachers, 44% of district officers and 40% of school counsellors had access to a computer at home. The results in Section 5.8.3 showed that word processing was again the most frequent use of ICT by teachers, head teachers, district officers and school counsellors. Furthermore, the results of Section 5.8.5 showed that the majority of respondents who had a computer at home had access to the Internet as well as many of them having access to e-mail.

Section 5.8.1 also showed that those teachers who had access to a computer at home used ICT more frequently in their teaching. This finding supports the idea that access to computers outside of the work place has a positive impact on the use of ICT in teaching (see Computers for Teachers initiative, Becta, 2001). Therefore, teachers should be advised to purchase a computer and helped to understand the importance of having it at home for personal and teaching purposes (e.g. to communicate with other teachers, to prepare lessons).

5.11.4 Professional development and knowledge/skills about ICT

Chapter 2 (see Section 2.3.3.3) showed that teachers' insufficient training opportunities are considered to be a major problem in the use of the ICT in teaching. In this study, the majority of teachers that used ICT in their teaching had attended some computer training courses (see Section 5.9). The course that was attended by most of the teachers was initial awareness at University. The correlation result showed that those teachers who had received many hours of computer training tended to use ICT more often in their teaching. This finding supports the results of some other research studies which also found a relationship between teachers' training and use of ICT in teaching (e.g. Reinen and Plomp, 1993; Preston et. al., 2000). Furthermore, Section 5.10 showed that teachers with more hours of computer training tend to have more knowledge concerning computers, more ICT skills as well as more knowledge about the use of ICT in teaching. In general, this finding supports the earlier finding of Reinen and Plomp (1993) in which there was a significant and positive relationship between teachers' training and their knowledge about computers.

As we have seen in Chapter 2 (see Section 2.3.3.2) another factor that inhibits the use of ICT in teaching was teachers' lack of knowledge and skills about ICT. The results of this

chapter showed that in general, teachers had relatively high levels of knowledge about some aspects of computers, and some ICT skills as well as knowledge about the use of ICT in their teaching. On the other hand, the data showed that head teachers, district officers and school counsellors had a relatively low level of knowledge about computers as well as ICT skills. These results indicate that future education for head teachers, district officers and school counsellors should focus on increasing their knowledge and skills regarding the use of computers. This may lead them to help teachers better in issues (e.g. training opportunities, technical support) that relate to ICT use in teaching.

In Section 5.10 all categories of knowledge about computers (knowledge concerning computers, ICT abilities, knowledge about the use of ICT in teaching) showed positive relationships with the total score of frequency of ICT in teaching, meaning that more computer knowledge was related with more frequent use of ICT in teaching. However, these correlations do not imply causation but they can tell us only about the direction (i.e. positive), and the strength of the relationship between the variables. Given this, therefore, we can conclude that either more knowledge about computers may lead to more frequent use of ICT in teaching or teachers who use ICT in their teaching very often may tend to have more knowledge about computers.

The above results indicate that in order to increase the use of ICT in teaching, the strategies need to focus on increasing teachers' opportunities to attend more training courses. In fact, the previous findings by Cox and Rhodes (1988) and Preston et al., (2000) showed that the most effective training leading to the uptake of ICT by primary and secondary school teachers was long award bearing courses rather than short school courses. Based on this research evidence, the results here suggest that it is more effective to engage teachers in long-term training sessions, in order to support them in using computers.

As we have seen in Chapter 4 (see Section 4.2), one of the objectives of this study was to investigate the current situation of ICT use in the 72 Greek primary schools. Based on the results of this chapter (e.g. very high pupil/computer ratio, lack of Internet access in some schools, small number of teaching staff and pupils that used ICT, low frequency of ICT in teaching) we can conclude that the uptake of ICT in these schools was relatively low. In other words, we can conclude that these schools were in the early stages of implementing ICT in teaching. In order to increase the level of use of ICT in these

schools, the ICT policy should increase the availability of appropriate facilities and resources (e.g. hardware, access to the Internet). In other words, when these schools have the appropriate resources and opportunities that related to ICT use, teachers will be more likely to use ICT in their teaching, which will lead to increased levels of the uptake of ICT in schools. Furthermore, the ICT policy should focus on those teachers that do not use ICT in their teaching. Achieving this requires more training hours and more knowledge and skills about computers.

Another objective of this study was to measure teachers' attitudes towards computers as well as their intention to use ICT in their teaching. The results of this objective are presented in the next chapter.

CHAPTER 6

TEACHERS' ATTITUDES TOWARDS COMPUTERS AND THEIR INTENTION TO USE ICT IN TEACHING

6.1 INTRODUCTION

As we have seen in Chapter 2 (see Section 2.3.3.7), teachers' attitudes towards computers can play an important role in the successful introduction and implementation of ICT in schools. A positive attitude toward computers has been shown in several studies to correlate to successful implementation of computer usage in teaching (see Section 2.3.3.7). Therefore, one of the objectives of this study was to investigate teachers' attitudes towards computers.

This chapter presents the results of the attitudes survey towards computers of the 181 Greek teachers that used ICT in their teaching in the 72 Greek primary schools of this study. The data were analysed in order to examine any differences between teachers' attitudes and other variables, including age, gender, and years of teaching experience. Furthermore, the data were analysed in order to examine the relationship between teachers' attitudes and other variables, such as teachers' knowledge about computers. In addition, one of the objectives of this study was to use the Theory of Reasoned Action and Theory of Planned Behaviour to explain teachers' intention to continue to use ICT in their teaching. Therefore, using the main factors in this theory (attitude towards the behaviour, subjective norm, perceived behavioural control, behavioural, normative, and control beliefs), the data were analysed to determine their affect on teachers' intention and behaviour to use ICT in their teaching.

6.2 TEACHERS' ATTITUDES TOWARDS COMPUTERS

As we have seen in Chapter 4 (see Section 4.6.1.3), 62 items were used to measure teachers' attitudes towards computers by examining the dimensions of anxiety, confidence, usefulness, liking, using e-mail, perceived educational impact, and social impact and training needs[1]. In order to compare the attitudes of teachers within the subscales and to find the overall attitudes towards computers, one mean score, across a range of 1 to 5 was calculated for each subscale and the total scale.

[1] The reliabilities (Cronbach alpha) of the eight subscales and the whole scale were presented in Chapter 4 (see Section 4.6.5.2).

A high mean score on the computer anxiety subscale corresponds to lower computer anxiety, while higher mean scores on the computer confidence, usefulness and liking subscales correspond to a greater degree of computer confidence, usefulness and liking, respectively. In addition, a higher score on the using e-mail, education and social impact as well as training need subscales corresponds to a more positive attitude towards these factors. Finally, a higher mean score for the whole scale corresponds to a more positive attitude towards computers. The mean scores (*M*) and standard deviations (*SD*) for the whole attitudes scale and the eight attitudes subscales are shown in Table 6.1.

Table 6.1 - Means (M) and standard deviations (SD) of teachers' attitudes towards computers.

Subscales	Number of items	*M*	*SD*
Computer Anxiety*	12	4.38	0.83
Computer Confidence	5	4.32	0.89
Computer Usefulness	7	4.47	0.76
Computer Liking	12	4.37	0.84
Use of E-mail	4	4.02	0.83
Educational Impact	10	4.25	0.82
Social Impact	7	4.20	0.93
Training Need	5	4.43	0.80
Overall scale	62	4.32	0.85

* Negative statements in this scale were reverse scored to be consistent in measurement. Therefore, the highest score in anxiety subscale indicates a low level of computer anxiety.

The mean for the overall computer attitude scale (62 items) was calculated as 4.32, with a standard deviation of 0.85. As the data presented in Table 6.1 indicate, teachers held generally favourable attitudes toward computers. Inspection of the means and the standard deviations per subscale indicate that computer usefulness had the highest mean score (M=4.47) and using e-mail subscale the lowest (M=4.02). Table 6.1 also shows that the variability for the social impact subscale was quite high (SD=0.93) compared to the other subscales.

In order to examine teachers' attitudes for each of the 62 items a mean (range 1 to 5) and standard deviation for each item were also calculated. In general, a higher mean in each attitude item corresponds to a more positive attitude towards computers. Table 6.2 shows the mean score and the standard deviation for each attitude item. As we can see in Table 6.2 the mean for the items of the eight computer attitude subscales ranged from 3.68 (see item 56) to 4.71 (see item 1).

Table 6.2 - Means (M) and standard deviations (SD) of attitudes towards computers items.

Item number	Subscales	*M*	*SD*
	Computer Anxiety		
1	If I was given the opportunity, I would like to learn about and use computers.	4.71	0.49
2	I think that computers are very easy to use.	4.19	0.84
3	I sometimes feel intimidated when I have to use a computer. *	4.34	0.97
4	I feel comfortable working with a computer.	4.30	0.88
5	Computers make me feel uneasy and confused. *	4.49	0.76
6	Computers are difficult to use. *	4.26	0.82
7	Computers do not scare me at all.	4.31	0.92
8	Working with computer makes me nervous. *	4.40	0.85
9	I hesitate to use a computer for fear of making mistakes I cannot correct. *	4.45	0.78
10	The challenge of learning about computers is exciting.	4.38	0.74
11	I get a sinking feeling when I think of trying to use a computer. *	4.59	0.66
12	I feel at ease when I am around computers.	4.11	0.92
	Computer Confidence		
13	I am sure I could do work with computers.	4.51	0.63
14	I am sure I could learn a computer language.	4.22	0.89
15	I will probably never learn to use a computer. *	4.62	0.69
16	I have a lot of self-confidence when it comes to working with computers.	3.93	1.10
17	I don't think I would do advanced computers work. *	4.30	0.91
	Computer Usefulness		
18	I would work harder if I could use computers more often.	3.98	1.07
19	I know that computers give me opportunities to learn new things.	4.61	0.49
20	I will use computers many ways in my life.	4.43	0.75
21	I can't think of any way that I will use computers in my career. *	4.55	0.71
22	Learning about computers is a waste of time. *	4.70	0.58
23	Learning about computers is interesting.	4.45	0.73
24	I believe that it is very important for me to learn how to use a computer.	4.60	0.61
	Computer Liking		
25	I am tired of using a computer. *	4.68	0.63
26	Computers are not exciting. *	4.50	0.79
27	I will do as little work with computers as possible. *	4.57	0.72
28	I concentrate on a computer when I use one.	4.29	0.75
29	I think working with computers would be enjoyable and stimulating.	4.52	0.62
30	The challenge of solving problems with computers does not appeal to me. *	4.15	1.08
31	When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.	4.16	0.95
32	I enjoy doing things on a computer.	4.46	0.61
33	I would like to learn more about computers.	4.65	0.49
34	I do not enjoy talking with others about computers. *	4.27	0.97
35	I would like working with computers.	4.43	0.85
36	I would like to spend more time using a computer.	3.81	1.03

Table 6.2 (continued).

Item number	Subscales	*M*	*SD*
	Use of E-mail		
37	The use of e-mail increases motivation for the course.	3.94	0.88
38	The use of e-mail makes the course more interesting.	4.01	0.82
39	The use of e-mail makes the student feel more involved.	3.99	0.83
40	The use of e-mail helps the student to learn more.	4.13	0.78
	Perceived Educational Impact		
41	Computers could enhance remedial instruction.	4.54	0.60
42	Using computers in class leads to more productivity among students.	4.23	0.78
43	Students are more attentive when computers are used in class.	4.06	0.99
44	Computers in school enhance students' creativity.	3.93	1.03
45	Computers help to teach more effectively.	4.25	0.76
46	The achievement of students can be increased when using computers for teaching.	4.12	0.86
47	Computers are valuable tools for improving the quality of a child's education.	4.40	0.75
48	Computers can be used successfully with courses which demand creative activities.	4.37	0.74
49	Computers would help students work with one another.	4.22	0.75
50	Computers can be a useful instructional aid in almost all subjects areas.	4.42	0.65
	Perceived Social Impact		
51	Computers harm relations between people. *	3.96	0.99
52	Working with computers in class distorts the social climate. *	4.14	1.03
53	Computers have become too dominant over us. *	4.54	0.61
54	Using a computer prevents me from being creative. *	4.49	0.61
55	Social contacts are negatively affected by the use of computers. *	4.14	1.03
56	We will lose control over computers one day. *	3.68	1.11
57	Computers reduce humans to number *	4.49	0.65
	Training needs		
58	In-service training courses about computers should be made compulsory.	4.08	1.13
59	I would like to take part in a computer course to learn more about computers.	4.59	0.56
60	I try to keep informed about technological changes.	4.42	0.68
61	I would like to learn more about computer as teaching aids.	4.64	0.54
62	I don't mind learning about computers.	4.44	0.85

Notes: * *Items for which the scoring was reversed.*

Teachers had high mean scores (higher than 4.00) on 54 of 62 attitudes items indicating that on average they had positive to strongly positive attitudes towards computers for various statements. For instance, the mean for the item 1 "If I was given the opportunity, I would like to learn about and use computers" was 4.71 with the standard deviation 0.49, indicating that almost all teachers strongly agreed that they want to learn more about using computers. Table 6.2 also shows that there were eight items that were rated relatively low (less than 4.00) by the teachers. One of these items related to computer

confidence (see item 16) one to computer usefulness (see item 18), one to computer liking (see item 36), two to using e-mail (see items 37 and 39), one to educational impact (see item 44), and two to social impact (see items 51 and 56). For instance, the mean for item 16 "I have a lot of self-confidence when it comes to working with computers" was 3.93 (*SD*=1.10) indicating that teachers expressed less confidence to work with computers. The data were further analysed to examine the differences in teachers' attitudes towards computers and other variables, including gender, age, and years of teaching experience. The descriptive results of the analysis of these variables were presented in Chapter 5, in detail. Each attitude item was scored from 1 to 5 and summed to create a total attitude score for each teacher (minimum attitude score=62, maximum attitude score=310). Then, one way Analysis of Variance (ANOVA) was conducted to determine if the differences between the variables and teachers' attitudes towards computers score were statistically significant. As we have seen in Chapter 4 (see Section 4.7.6), this analysis many times was followed by a multiple-pairwise mean comparison with Scheffé's test. The results of this analysis are presented in the following sections are discussed in Section 6.4.

6.2.1 Gender and attitudes towards computers

The data were analysed to examine the difference in attitudes toward computers for male and female respondents (see Chapter 5, Section 5.2.1). Table 6.3 shows the descriptive summary of the results with the mean attitude scores, the standard deviation and the range of scores (minimum and maximum), of the two gender groups. As is shown in Table 6.3, the mean attitude score for males was 270.94 (*SD*=32.26) and for females was 264.05 (*SD*=28.66). In order to find if there was a significant difference between males and females a one way analysis of variance was conducted (see Table 6.4). The one way ANOVA summary table shows sums of squares, degrees of freedom (df), mean square, observed F ratio, and *p* value for the analysis.

Table 6.3 - Descriptive statistics of gender and attitudes towards computers.

Gender	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	107	270.94	32.26	3.12	264.76	277.13	190	310
Female	74	264.05	28.66	3.33	257.41	270.69	188	310
Overall*	181	268.13	30.94	2.30	263.59	272.67	188	310

* Overall means the total of the sample, the overall of the mean, of the standard deviation, of the lower and upper bound and the minimum and maximum score.

Table 6.4 - One way analysis of variance (ANOVA) of gender and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	2076.630	1	2076.630	2.183	.141*
Within Groups	170253.447	179	951.137		
Overall	172330.077	180			

* Not significant ($p>.05$)

The F of 2.183 was not statistically significant as indicated by the listed *p* value of .141 which should be interpreted as a $p>.05$ [1]. Therefore, analysis of gender showed no significant differences ($p>.05$) in attitudes towards computers.

6.2.2 Age and attitudes towards computers

Data were also analysed to see if there was any difference between teachers' different age groups regarding computer attitudes. Table 6.5 shows that the mean score of the five age groups varied from 243.00 (see age group 46-over 50) to 279.40 (see age group 31-35). Table 6.6 shows the one way ANOVA results.

Table 6.5 - Descriptive statistics of age groups and attitudes towards computers.

Age groups	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
23-30	13	254.92	30.842	8.554	236.29	273.56	205	308
31-35	47	279.40	24.481	3.571	272.22	286.59	217	310
36-40	87	266.85	31.439	3.371	260.15	273.55	188	310
41-45	25	267.28	34.078	6.816	253.21	281.35	190	308
46-over 50	9	243.00	28.258	9.419	221.28	264.72	214	301
Overall	181	268.13	30.942	2.300	263.59	272.67	188	310

[1] Any P value in each table of One Way Analysis of Variance in this Chapter and in Chapter 7 that is less than 0.05 is significant. All other values in that column that are greater than 0.05 are not significant (see Howitt and Cramer, 2003).

Table 6.6 - One way analysis of variance (ANOVA) of age groups and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	14085.738	4	3521.434	3.917	.005*
Within Groups	158244.340	176	899.116		
Overall	172330.077	180			

* Significant ($p<.05$)

As is shown in Table 6.6 there were statistically significant differences in the means of attitude among the five age groups (F=3.917, $p=.005$, $p<.05$). Because the test was significant, Post hoc Scheffe multiple comparisons were conducted to evaluate pairwise differences among the groups. Table 6.7 shows the results of the Post hoc Scheffe test.

Table 6.7 - Scheffe Post Hoc multiple comparisons of age groups and attitudes towards computers.

		Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
(I) AGE	(J) AGE				Lower Bound	Upper Bound
23-30	31-35	-24.48	9.396	.153	-53.73	4.77
	36-40	-11.93	8.916	.774	-39.69	15.83
	41-45	-12.36	10.253	.835	-44.28	19.56
	46-over 50	11.92	13.002	.933	-28.56	52.40
31-35	23-30	24.48	9.396	.153	-4.77	53.73
	36-40	12.55	5.428	.258	-4.35	29.45
	41-45	12.12	7.423	.616	-10.98	35.23
	46-over 50	36.40*	10.910	.028	2.44	70.37
36-40	23-30	11.93	8.916	.774	-15.83	39.69
	31-35	-12.55	5.428	.258	-29.45	4.35
	41-45	-.43	6.804	1.000	-21.61	20.75
	46-over 50	23.85	10.499	.276	-8.84	56.54
41-45	23-30	12.36	10.253	.835	-19.56	44.28
	31-35	-12.12	7.423	.616	-35.23	10.98
	36-40	.43	6.804	1.000	-20.75	21.61
	46-over 50	24.28	11.656	.366	-12.01	60.57
46-over 50	23-30	-11.92	13.002	.933	-52.40	28.56
	31-35	-36.40*	10.910	.028	-70.37	-2.44
	36-40	-23.85	10.499	.276	-56.54	8.84
	41-45	-24.28	11.656	.366	-60.57	12.01

* The mean difference is significant at the .05 level.

The Scheffe post hoc test showed (see Table 6.7) that in the age group 31-35 the attitudes were significantly more positive (see *p* value column) than in the 46-over 50 age group (*p=.028*), but there were no significant differences between other age groups.

6.2.3 Qualifications and attitudes towards computers

A one way ANOVA was also conducted to determine if there was any difference between teachers' qualifications (see Chapter 5, Section 5.2.3) and their attitudes towards computers. Table 6.8 below shows a summary of the descriptive statistics for teachers' attitudes and their qualifications and Table 6.9 show the results of one way ANOVA.

Table 6.8 - Descriptive statistics of qualifications and attitudes towards computers.

Qualification(s)	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Category A*	50	265.58	31.58	4.47	256.61	274.55	190	310
Category B**	108	266.42	31.68	3.05	260.37	272.46	188	310
Category C***	23	281.70	22.60	4.71	271.92	291.47	230	308
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Notes: *=Category "A", were those teachers who possessed only one degree. **=Category "B", were the teachers who possessed more than one degree or in-service training. Category "C", were the teachers who possessed some degrees from the previous categories as well as a Masters degree and a PhD in various subjects (see Chapter 5, Section 5.2.3).

Table 6.9 - One way analysis of variance (ANOVA) of qualifications and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	4874.778	2	2437.389	2.591	.078*
Within Groups	167455.300	178	940.760		
Overall	172330.077	180			

* Not significant (p>0.05)

As we can be seen in Table 6.9 the teachers of Category "A" had a mean of 265.58 (*SD*=31.58), the teachers of Category "B" had a mean of 266.42 (*SD*=31.68) and the teachers of Category "C" had a mean of 281.70 (*SD*=22.60). Table 6.9 shows that the F value was 2.591, and the p value was .078 (p>.05), which means there was no difference among the attitudes of teachers in the three categories of qualifications.

6.2.4 Teaching experience and attitudes towards computers

The data were analysed to find out if there were any differences in teachers' computer attitudes related to their teaching experience (see Chapter 5, Section 5.2.4). Table 6.10 shows a summary of descriptive statistics describing the mean attitude scores and standard deviations for each year group of teaching experience.

As can be seen from Table 6.10, the teachers with six to ten years of teaching experience had a higher mean (*M*=272.02) than the teachers in the other year groups of teaching experience.

Table 6.10 - Descriptive statistics of years of teaching experience and attitudes towards computers.

Years	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1-5	19	266.05	31.76	7.29	250.75	281.36	205	308
6-10	40	272.02	29.61	4.68	262.55	281.50	188	310
11-15	46	271.93	29.45	4.34	263.19	280.68	190	310
16-20	63	267.51	32.39	4.08	259.35	275.67	190	310
21-25	11	251.18	30.01	9.05	231.02	271.34	214	308
Over 25	2	235.00	12.73	9.00	120.64	349.36	226	244
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Table 6.11 - One way analysis of variance (ANOVA) of years of teaching experience and attitudes towards computers.

	Sum of Squares	Df	Mean Square	F	*p*
Between Groups	6733.968	5	1346.794	1.423	.218*
Within Groups	165596.109	175	946.263		
Overall	172330.077	180			

* Not significant ($p>.05$)

Table 6.11 shows the results of one way ANOVA regarding the differences in teachers' computer attitudes related to their teaching experience. The F value was 1.423 and *p* value .218 ($p>.05$) and therefore there was no significant statistical difference in attitudes towards computers between teachers with various years of teaching experience in this study. These results are discussed in Section 6.4.1.3.

6.2.5 Years of service within the school as a teacher and attitudes towards computers

The differences in teachers' attitudes towards computers related to their years of service as a teacher in the specific school (see Chapter 5, Section 5.2.5) was also investigated. As we can see from Table 6.12 the teachers who worked in their school for one to five years had higher positive attitude means than the teachers who worked in their schools for more than five years.

Table 6.12 - Descriptive statistics of years of service within the school as a teacher and attitudes towards computers.

Years of service	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1-5	125	271.55	29.371	2.627	266.35	276.75	188	310
6-10	46	263.78	31.232	4.605	254.51	273.06	195	308
11-over 15	10	245.30	39.331	12.437	217.16	273.44	190	310
Overall	181	268.13	30.942	2.300	263.59	272.67	188	310

Table 6.13 shows the results of one way ANOVA to investigate the differences in teachers' attitudes towards computers related to their years of service as a teacher in the specific school.

Table 6.13 - One way analysis of variance (ANOVA) of years of service within the school as a teacher and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	7545.239	2	3772.620	4.075	.019*
Within Groups	164784.838	178	925.758		
Overall	172330.077	180			

* Significant ($p<.05$)

As is seen from Table 6.13 there was a statistical difference for computer attitudes and number of years of service as a teacher within the particular school. The F value was 4.075 and the *p* value .019 ($p<.05$).

Table 6.14 - Scheffe Post Hoc multiple comparisons.

(I) YEARS	(J) YEARS	Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
					Lower Bound	Upper Bound
1-5	6-10	7.77	5.247	.336	-5.18	20.72
	11-over 15	26.25*	9.999	.034	1.57	50.93
6-10	1-5	-7.77	5.247	.336	-20.72	5.18
	11-over 15	18.48	10.616	.223	-7.72	44.69
11-over 15	1-5	-26.25*	9.999	.034	-50.93	-1.57
	6-10	-18.48	10.616	.223	-44.69	7.72

* The mean difference is significant at the .05 level.

The Scheffe Post Hoc test in Table 6.14 (see *p* value column) indicated that the significant difference in attitudes towards computers was between teachers who worked in their schools for one to five years and teachers who worked for 11 to 15 or over years ($p=.34$).

6.2.6 School's geographical area and teachers' attitudes towards computers

A one-way Anova was conducted to assess differences between teachers' attitudes by geographical area of their schools (urban, semi-urban, and rural) (see Chapter 5, Section 5.3.1). Table 6.15 shows that the mean score and standard deviation of the attitude toward computers of teachers in urban areas were 268.87 and 29.90, for teachers in semi-urban areas were 248.59 and 40.36 and for teachers in rural areas 274.26 and 26.84 respectively.

Table 6.15 - Descriptive statistics of school's geographical area and attitudes towards computers.

Schools' area	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Urban	125	268.87	29.90	2.67	263.58	274.17	190	310
Semi-urban	17	248.59	40.36	9.79	227.84	269.34	188	308
Rural	39	274.26	26.84	4.30	265.56	282.96	217	310
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Table 6.16 - One way analysis of variance (ANOVA) of school's geographical area and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	8024.572	2	4012.286	4.347	.014*
Within Groups	164305.506	178	923.065		
Overall	172330.077	180			

* Significant ($p<.05$)

Table 6.16 shows the results of one way ANOVA to investigate the differences in teachers' attitudes related to their schools' geographical area. Table 6.16 shows that there was a statistically significant difference for the computer attitudes of teachers related to their schools geographical area (F=4.347, p=.014). Post hoc comparisons were further conducted to find the differences among the geographical areas (see Table 6.17).

Table 6.17 - Scheffe Post Hoc multiple comparisons.

(I) AREA	(J) AREA	Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
					Lower Bound	Upper Bound
Urban	Semi-urban	20.28*	7.854	.038	.90	39.67
	Rural	-5.38	5.573	.628	-19.14	8.37
Semi-urban	Urban	-20.28*	7.854	.038	-39.67	-.90
	Rural	-25.67*	8.830	.016	-47.46	-3.87
Rural	Urban	5.38	5.573	.628	-8.37	19.14
	Semi-urban	25.67*	8.830	.016	3.87	47.46

* The mean difference is significant at the .05 level.

The results of the Post hoc Scheffe test (see Table 6.17) showed (see p value column) that teachers whose schools were located in urban area had statistically significant higher positive attitudes towards computers than teachers whose schools were located in semi-urban areas (p=.038), but not significantly different attitudes from those of teachers whose schools were located in rural areas (p=.628). In addition, the attitudes of teachers whose schools were located in rural areas were significantly more positive than from teachers' attitudes whose schools were located in semi-urban areas (p=.016).

6.2.7 Access to a computer for personal use outside of school and attitudes towards computers

Table 6.18 shows the means and standard deviations for teachers who had access to a computer for personal use outside school and for teachers that did not have access to a computer (see Chapter 5, Section 5.8.1). Table 6.19 shows the results of one way ANOVA to investigate the differences in teachers' attitudes towards computers related to their access to a computer for personal use outside of school.

Table 6.18 - Descriptive statistics of access to a computer for personal use outside of school and attitudes towards computers.

	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Access to a computer	143	273.60	28.28	2.36	268.93	278.28	195	310
No access to a computer	38	247.53	32.20	5.22	236.94	258.11	188	298
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Table 6.19 - One way analysis of variance (ANOVA) of access to a computer for personal use outside of school and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	20412.324	1	20412.324	24.051	.000*
Within Groups	151917.753	179	848.703		
Overall	172330.077	180			

* Significant ($p<.05$)

The results in Table 6.19 indicated that teachers with access to a computer for personal use outside of the school had significantly more positive attitudes (M=273.60, SD=28.88) than teachers without access to a computer outside of school (M=247.53, SD=32.20) (F=24.051, p=.000).

6.2.8 School's ICT type of use and attitudes towards computers

Data were also analysed in order to find any differences between teachers' attitudes related to their ICT type of use in their teaching (see Chapter 5, Section 5.7.11). Table 6.20 shows that teachers in the group that used ICT as a tool had a mean attitude of 264.95 (SD=31.35), teachers in the group of that used ICT as a subject had a mean of 283.24 (SD=27.47) and teachers in the third group (combined use) had a mean attitude of 268.87 (SD=29.92).

Table 6.20 - Descriptive statistics of school's ICT type of use and attitudes towards computers.

ICT type	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ICT as a tool	126	264.95	31.15	2.77	259.46	270.44	188	310
ICT as a subject	25	283.24	27.47	5.49	271.90	294.58	195	310
Both	30	268.87	29.92	5.46	257.70	280.04	195	308
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Table 6.21 - One way analysis of variance (ANOVA) of school's ICT type of use and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	6996.336	2	3498.168	3.766	.025*
Within Groups	165333.741	178	928.841		
Overall	172330.077	180			

* Significant (p<.05)

The results of a one way ANOVA (see Table 6.21) indicated a significant statistical difference between computer attitudes of the teachers in relation to their ICT type of use in their teaching (F=3.766, p=.025).

Table 6.22 - Scheffe Post Hoc multiple comparisons.

(I) COMPUTER	(J) COMPUTER	Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
					Lower Bound	Upper Bound
ICT as a tool	ICT as a subject	-18.29*	6.673	.025	-34.76	-1.82
	Both	-3.91	6.191	.819	-19.20	11.37
ICT as a subject	ICT as a tool	18.29*	6.673	.025	1.82	34.76
	Both	14.37	8.253	.222	-6.00	34.75
Both	ICT as a tool	3.91	6.191	.819	-11.37	19.20
	ICT as a subject	-14.37	8.253	.222	-34.75	6.00

* The mean difference is significant at the .05 level.

These differences were further explored with a Sheffe test (see Table 6.22) which showed (see *p* value column) that teachers' positive attitudes in using ICT as a subject group were significantly higher than teachers in using ICT as a tool group (p=.025). However, there was no difference between teachers' attitudes in ICT as a tool group and teachers attitudes in the third group, where ICT was used both as a tool and as a subject (p=.819).

6.2.9 Use of ICT in teaching and attitudes towards computers

The data were also analysed in order to see if there was any difference between teachers' attitudes towards computers related to their frequency of ICT in their teaching (see Chapter 5, Section 5.7.2). As we have seen in Chapter 4 (see Section 4.6.1.1.4) there were 15 items measuring teachers' frequency of ICT in their teaching. Their responses were

calculated so that higher sums indicated greater frequency of use; thus the lowest possible score on ICT frequency score scale was 15, the highest, 75. Then teachers were divided into three groups: low users, medium users and high users. Scores from 15-25, 26-50, and 51-75 were classified as being "low users", "medium users", and "high users" of using ICT in teaching[1].

Table 6.23 shows the mean and standard deviation for each category of users. The mean of the low users group was 260.95 (*SD*=31.52) while the mean was 281.29 (*SD*=24.91) for the medium users group and 270.00 (*SD*=52.33) for high users group.

Table 6.23 - Descriptive statistics of frequency of ICT use and attitudes towards computers.

	N	*M*	*SD*	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Low users	116	260.95	31.52	2.93	255.15	266.74	188	310
Medium users	63	281.29	24.91	3.14	275.01	287.56	195	310
High users	2	270.00	52.33	37.00	-200.13	740.13	233	307
Overall	181	268.13	30.94	2.30	263.59	272.67	188	310

Table 6.24 - One way analysis of variance (ANOVA) of frequency of ICT use and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	16893.531	2	8446.765	9.673	.000*
Within Groups	155436.547	178	873.239		
Overall	172330.077	180			

* Significant (p<.05)

Table 6.24 shows the results of a one way ANOVA analysis to investigate the differences in teachers' attitudes and their level of ICT frequency in their teaching.

Table 6.25 - Scheffe Post Hoc multiple comparisons.

		Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
(I) USERS	(J) USERS				Lower Bound	Upper Bound
Low users	Medium users	-20.34*	4.625	.000	-31.75	-8.92
	High users	-9.05	21.075	.912	-61.07	42.97
Medium users	Low users	20.34*	4.625	.000	8.92	31.75
	High users	11.29	21.225	.868	-41.11	63.68
High users	Low users	9.05	21.075	.912	-42.97	61.07
	Medium users	-11.29	21.225	.868	-63.68	41.11

* The mean difference is significant at the .05 level.

[1] It should be remembered that the terms "low", "medium", and "high" users are relative.

The results of the one way ANOVA (see Table 6.24) showed that there were statistically significant differences in the means of attitudes among the three ICT users groups (F=9.673, p=.000). Because the test was significant, Post hoc Scheffe multiple comparisons were conducted to evaluate pairwise differences among the groups (see Table 6.25). The results of the post hoc test in Table 6.25 (see p value column) indicated that medium ICT users' attitudes were significantly higher than low ICT users (p=.000). In addition, there was no difference between low ICT users' attitudes and high ICT users' attitudes (p=.912).

6.2.10 Pupil year groups where teachers used ICT and attitudes towards computers

The data were further analysed to find out if there was any difference between teachers' attitudes related to the year groups where they used ICT[1] (see Chapter 5, Section 5.7.10). Table 6.26 shows the descriptive statistics of each group of teachers and Table 6.27 shows the results of the one-way ANOVA analysis.

Table 6.26 - Descriptive statistics of pupils' year groups and attitudes towards computers.

Year group*	N	*M*	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Year 1	7	251.43	37.403	14.137	216.84	286.02	217	310
Year 2	9	260.56	37.384	12.461	231.82	289.29	188	301
Year 3	18	255.06	28.747	6.776	240.76	269.35	214	303
Year 4	31	254.35	32.797	5.890	242.32	266.38	190	310
Year 5	35	271.40	29.093	4.918	261.41	281.39	205	310
Year 6	37	270.08	29.746	4.890	260.16	280.00	190	310
Two year groups**	27	286.33	22.588	4.347	277.40	295.27	225	310
More than 2 year groups***	17	278.06	24.969	6.056	265.22	290.90	227	307
Overall	181	268.13	30.942	2.300	263.59	272.67	188	310

Notes: * In Greek educational system, pupils start school at 5 plus years old. Therefore, Year 1 includes children between 5 and 6 years of age, Year 2 children between 6 and 7 years of age and so on. ** This category consisted teachers who taught ICT in two groups. *** This category consisted teachers who taught ICT in three year groups or more. (This happens mainly in schools with a small number of pupils).

Table 6.27 - One way analysis of variance (ANOVA) of pupils' year groups and attitudes towards computers.

	Sum of Squares	df	Mean Square	F	*p*
Between Groups	22566.002	7	3223.715	3.724	.001*
Within Groups	149764.076	173	865.688		
Overall	172330.077	180			

* Significant (p<.05)

[1] By pupil year groups I mean all pupils of a same age within a given school year, as a whole; not taking into account different classes.

Table 6.28 - Scheffe Post Hoc multiple comparisons.

(I) Year group	(J) Year group	Mean Difference (I-J)	Std. Error	*p*	95% Confidence Interval	
					Lower Bound	Upper Bound
Year 1	Year 2	-9.13	14.828	1.000	-65.47	47.22
	Year 3	-3.63	13.106	1 000	-53.43	46.18
	Year 4	-2.93	12.312	1 000	-49.71	43.86
	Year 5	-19 97	12.182	.911	-66.26	26 32
	Year 6	-18.65	12.127	.936	-64 74	27 43
	Two year groups	-34 90	12.479	.354	-82.33	12 52
	More than 2 year groups	-26.63	13.213	.771	-76 84	23 58
Year 2	Year 1	9.13	14.828	1 000	-47.22	65 47
	Year 3	5.50	12.012	1.000	-40.14	51.14
	Year 4	6.20	11.141	1 000	-36.13	48 53
	Year 5	-10 84	10.996	.995	-52 63	30 94
	Year 6	-9.53	10.935	.998	-51.08	32.03
	Two year groups	-25.78	11.325	.638	-68 81	17.26
	More than 2 year groups	-17.50	12.129	.954	-63.59	28.59
Year 3	Year 1	3.63	13.106	1.000	-46.18	53.43
	Year 2	-5.50	12.012	1.000	-51.14	40 14
	Year 4	.70	8 719	1.000	-32 43	33 83
	Year 5	-16.34	8.534	.816	-48 77	16.08
	Year 6	-15.03	8.455	.868	-47.16	17.10
	Two year groups	-31.28	8 953	.102	-65.30	2 74
	More than 2 year groups	-23.00	9.951	.619	-60.82	14 81
Year 4	Year 1	2.93	12.312	1.000	-43 86	49 71
	Year 2	-6 20	11.141	1.000	-48.53	36 13
	Year 3	- 70	8.719	1.000	-33.83	32 43
	Year 5	-17.05	7.257	.598	-44 62	10 53
	Year 6	-15.73	7.164	.682	-42 95	11.50
	Two year groups	-31.98*	7.745	.021	-61.41	-2.55
	More than 2 year groups	-23.70	8.880	.420	-57.45	10 04
Year 5	Year 1	19.97	12.182	.911	-26.32	66.26
	Year 2	10.84	10.996	.995	-30.94	52 63
	Year 3	16.34	8 534	.816	-16.08	48 77
	Year 4	17 05	7.257	.598	-10.53	44 62
	Year 6	1.32	6.938	1.000	-25.04	27 68
	Two year groups	-14.93	7.536	.787	-43.57	13 70
	More than 2 year groups	-6 66	8 698	.999	-39.71	26 39
Year 6	Year 1	18.65	12.127	.936	-27.43	64 74
	Year 2	9.53	10.935	.998	-32 03	51 08
	Year 3	15.03	8.455	.868	-17.10	47.16
	Year 4	15.73	7.164	.682	-11.50	42.95
	Year 5	-1 32	6.938	1.000	-27 68	25 04
	Two year groups	-16 25	7.447	.689	-44 55	12 05
	More than 2 year groups	-7.98	8.621	.997	-40 74	24 78
Two year groups	Year 1	34.90	12 479	.354	-12 52	82 33
	Year 2	25.78	11.325	.638	-17 26	68 81
	Year 3	31.28	8.953	.102	-2 74	65.30
	Year 4	31 98*	7.745	.021	2 55	61.41
	Year 5	14 93	7.536	.787	-13.70	43 57
	Year 6	16.25	7.447	.689	-12 05	44.55
	More than 2 year groups	8.27	9.110	997	-26.34	42.89
More than 2 year groups	Year 1	26.63	13.213	.771	-23 58	76 84
	Year 2	17.50	12 129	.954	-28.59	63.59
	Year 3	23.00	9.951	.619	-14 81	60 82
	Year 4	23.70	8 880	.420	-10.04	57 45
	Year 5	6.66	8.698	.999	-26.39	39 71
	Year 6	7 98	8 621	.997	-24.78	40 74
	Two year groups	-8.27	9 110	.997	-42 89	26 34

* The mean difference is significant at the .05 level.

The F value of the one-way ANOVA was 3.724, with a significance of .001 (p<.05). The Post Hoc test by the Scheffe method, in Table 6.28 (see p value column) shows that there was a significance difference (p=.021) of the means of the attitudes score between teachers of "Year 4" and teachers of joint two year groups (with a .05 significance confidence level), that is, the attitudes of the "two year group" teachers were higher than the attitudes of "Year 4 teachers". This study, moreover, analysed the relationships between teachers' knowledge score about computers, training hours score, frequency score of ICT in teaching and their attitudes towards computers. Pearson's correlation was used to examine these relationships. The results of this analysis are presented in the following three sections.

6.2.11 Relationships between teachers' knowledge about computers and their attitudes towards computers

As we have seen in Chapter 4 (see Section 4.6.1.1.2), there were three categories of knowledge about computers: (a) knowledge concerning computers (ten items), (b) ICT abilities (ten items) and (c) knowledge about using computers in teaching (ten items). For each item the responses were coded 1 for "none" to 4 for "a lot" (see Section 4.7.3.2). Thus the scores for each teacher in each category ranged from 10 to 40.

As we have seen in Chapter 4 (see Section 4.7.6), a Pearson Correlation Coefficient (two tailed) was used to assess the relationship between computer attitudes and knowledge about computers. The strength of the relationship between the variables in the correlation results in this chapter as well in the following chapters is shown by the correlation coefficient (r). A correlation of +1 indicates that there is a perfect linear relationship between two variables; as one variable increase, so does the other. A correlation of -1 indicates that there is a perfect linear relationship between two variables. However, as one variable increases the other variable decreases. A correlation of 0 indicates that there is no linear relationship between two variables. Correlation coefficients of .10, .30 and .50, are interpreted as small, medium, and large coefficients respectively (for a detailed discussion on the Pearson product-moment correlation see Green, et al., 2000).

Table 6.29 - Pearson correlation for attitudes towards computers and knowledge about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	Use of E- mail	Educational Impact	Social Impact	Training Need
Knowledge concerning computers	.581** (.000)	.533** (.000)	.571** (.000)	.510** (.000)	.509** (.000)	.406** (.000)	.563** (.000)	.443** (.000)	.448** (.000)
ICT' abilities	.588** (.000)	.563** (.000)	.544** (.000)	.494** (.000)	.542** (.000)	.423** (.000)	.547** (.000)	.473** (.000)	.375** (.000)
Knowledge about the use of ICT in teaching	.623** (.000)	.616** (.000)	.615** (.000)	.518** (.000)	.585** (.000)	.418** (.000)	.573** (.000)	.430** (.000)	.454** (.000)

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.30 - Pearson correlation for attitudes towards computers and training about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	Use of E-mail	Educational Impact	Social Impact	Training Need
Training score	.203** (.006)	.180* (.015)	.208** (.005)	.226** (.002)	.156** (.037)	.188* (.012)	.196** (.008)	.119 (.111)	.167** (.025)

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.31 - Pearson correlation for attitudes towards computers and frequency of ICT use.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	Use of E-mail	Educational Impact	Social Impact	Training Need
ICT frequency score	.246** (.001)	.228** (.002)	.307** (.000)	.185* (.012)	.226** (.002)	.167* (.025)	.231** (.002)	.177* (.017)	.151** (.042)

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 6.29 shows the results of the Pearson correlation coefficients between teachers' knowledge about computers and their attitudes towards computers. Firstly, as can be seen from Table 6.29, the results showed that the attitudes towards computers score, correlated with the three categories of knowledge scores. The Pearson correlation showed a positive and large correlation between attitudes' score with knowledge concerning computers (r=+.581, p<0.01), ICT abilities (r=+.588, p<0.01) and knowledge concerning using computers in teaching (r=+.623, p<0.01). Secondly, Table 6.29 shows that the mean scores of the eight attitudes subscales were found to have a significant, strong positive correlation with each of the three categories of knowledge scores about computers.

The ranges of r values for all eight attitude subscales were large, with a minimum value of +.406 (p<.0.01) (see correlation between using e-mail and knowledge concerning computers) and a maximum value of +.616 (p<.0.01) (see correlation between anxiety and knowledge about the use of ICT in teaching). Therefore, these correlations show that teachers who had more knowledge about computers tend to have more positive attitudes towards computers.

6.2.12 Relationships between teachers' training received and their attitudes towards computers

In order to determine the strength of association between the attitudes towards computers and the score of computer training (see Chapter 5, Section 5.9), the Pearson correlation was also used. A training score for each teacher was calculated by summing the number of hours of computer training they had attended.

Table 6.30 shows a Pearson correlation of p<0.01, indicating a significant degree of association between attitude score and training score (r=+.203). In addition, Table 6.30 shows that there was a positive and statistically significant correlation between seven attitude subscales and training score. However, as we can see from Table 6.30 these correlations were very small. The correlation results between training score and the seven attitudes subscales shows that those teachers who had received many hours of computer training tended to have more positive attitudes towards computers.

6.2.13 Relationships between teachers' use of ICT in teaching and their attitudes towards computers

A Pearson correlation was also used to examine the relationship between teachers' attitudes towards computers with their frequency ICT score (minimum score=15, maximum score=75) in their teaching (see Section 4.7.3.2). The results of the correlations are shown in Table 6.31.

The results of the Pearson correlation indicated that there was a positive relationship between teachers' attitude scores towards computers and their ICT frequency scores. The r value was +.246, and the p value was .001 ($p<0.01$). In addition, Table 6.31 shows that the ICT frequency score positive correlated with all eight attitudes subscales. The highest correlation was between confidence subscale and ICT frequency score (r=+.307, p=.000) while the lowest correlation was between training need subscale and ICT frequency score (r=+.151, p=.042). Therefore, these correlation results show that the teachers who had positive attitudes towards computers were likely to use ICT more frequently in their teaching.

The previous sections presented the results of the analysis of teachers' attitudes towards computers. A one way analysis of variance (ANOVA) and Post hoc Scheffe multiple comparisons were conducted to determine if significant differences existed in teachers' attitudes towards computers among specific variables such as gender, years of teaching experience. In addition, Pearson correlation analysis was conducted in order to find any relationship between teachers' attitudes and other variables, including frequency of use of ICT in teaching and knowledge about computers. The conclusions, which were drawn from these results, are discussed in Section 6.4 of this chapter in relation to previous findings of other studies. The next sections present teachers' intentions to continue to use ICT in their teaching.

6.3 TEACHERS' INTENTION TO USE ICT (THEORY OF REASONED ACTION AND THEORY OF PLANNED BEHAVIOUR)

As was discussed in chapters 3 and 4, the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) has been used to explain teachers' intention to use ICT in their teaching. More specifically, this theory was applied in order:

a) to investigate the influence of attitude toward the behaviour, subjective norm and perceived behavioural control on teachers' intention to engage in using ICT in their teaching during the following three months,

b) to identify teachers' behavioural, normative and control beliefs about the use of ICT in their teaching.

As we have seen in Chapter 3 (see Section 3.5.3), the TPB was proposed as an extension of the TRA to account for conditions (perceived behavioural control) where people do not have complete control over their behaviour. The TPB has been found more valid in predicting behaviour in many studies, compared to the TRA. Therefore, an additional objective of this study was to compare the predictive validity of TPB with the TRA. The empirical evidence used for the TRA was data from the questions of attitude towards behaviour and the subjective norm. Whereas the TPB included both these data sources, as well as the questions from the perceived behavioural control. The following section presents the descriptive statistics and Pearson correlations for the variables of the TPB. A comparison of the TRA and TPB models regarding teachers' intention and behaviour to use ICT is presented in Section 6.3.2. The behavioural, normative and control beliefs follow in Section 6.3.3.

6.3.1 Descriptive statistics and correlations

As we have seen in Chapter 4 (see Section 4.7.6), the first step of analysis of the TRA and TPB was to compute basic descriptive statistics for teachers' responses for each component of the theory. Table 6.32 presents descriptive statistics (means, standard deviations, minimum and maximum score) among the direct and indirect measures[1] of the TRA and TPB.

[1] As we have seen in Chapter 4 (see Section 4.6.1.2) the direct measures of the two theories included items measuring behaviour (15 items), intention (3 items), attitude toward behaviour (5 items), subjective norm (5 items), and perceived behavioural control (4 items). The indirect measures included 34 behavioural beliefs and evaluation of outcome items, 12 normative beliefs and motivation to comply items, and 20 control beliefs and control belief power items.

Table 6.32 shows that the means of all measures except the behaviour were on average relatively high, indicating that the 175 Greek teachers (see Section 4.6.7) had positive scores for these variables. Attitude toward behaviour had the highest mean score and perceived behavioural control the lowest.

Table 6.32 - Means (M), standard deviations (SD), minimum and maximum score for variables of the Theory of Reasoned Action and Theory of Planned Behaviour.

Variable	*M*	*SD*	*Minimum*	*Maximum*
Behaviour (B)*	25.05	6.430	17	55
Intention (I)	6.32	0.851	4	7
Attitude toward behaviour (A)	6.46	0.793	4	7
Subjective norm (SN)	6.20	0.878	3	7
Perceived behavioural control (PBC)	5.59	1.185	2	7
Belief-Based Attitudes (B.A)**	1337.23	209.927	841	1666
Belief-Based Subjective Norm (B.SN)***	422.00	102.725	140	588
Belief-Based Perceived behavioural control (B.PBC)****	752.17	119.547	436	973

Notes: Possible range for behaviour was 15 to 75. Possible range for Intention, Attitude toward behaviour, subjective norm, and perceived behavioural control was 1 to 7. Possible range for Belief-Based Attitudes was 34 to 1666, for Belief-Based Subjective norm was 12 to 588 and for belief-based perceived behavioural control was 20 to 980.
* Behaviour as expressed at Stage 2 (June 2002).
** To produce a belief-based estimate of attitude, belief strength and outcome evaluation measures were multiplied and the resulting products were summed.
*** To produce a belief-based estimate of subjective norm, belief strength and motivation to comply measures were multiplied and the resulting products were summed.
**** To produce a belief-based estimate of perceived behavioural control, belief strength and perceived power were multiplied and the resulting products were summed.

More specifically, as shown in Table 6.32, teachers reported relatively medium levels of using ICT in teaching (M=25.05, SD=6.430). The mean score of intention was 6.32 (SD=0.851), indicating that teachers had strong intentions to use ICT in their teaching. The mean attitude score was 6.46 (SD=0.793), indicating that teachers on average had very positive attitudes toward using ICT in their teaching. The mean subjective norm was 6.20 (SD=0.878) indicating that teachers perceived strong social pressure to use ICT. Finally, the mean score of perceived behavioural control was 5.59 (SD=1.185), indicating that teachers had a positive perception of control over the use of ICT in teaching.

The mean Belief-Based Attitudes score was 1337.23, (SD=209.927) indicating that teachers on average had positive beliefs concerning the outcomes of using ICT in their teaching. The mean of Belief-Based Subjective Norm was 422.00 (SD=102.725), which shows that teachers were influenced by other persons or groups about the use of ICT in

their teaching. The mean of Belief-Based Perceived behavioural control was 752.17 (*SD=119.547*) indicating that teachers on average felt that specific control factors will be present in their school in order to help them to use ICT in their teaching. The second step of the analysis was the calculation of Pearson correlations for the direct and indirect measures of the TRA and TPB. These correlations were performed for two reasons. Firstly, Pearson correlations were calculated in order to examine the relation of behaviour and intention with the other constructs of the TRA and TPB (attitude, subjective norm and perceived behavioural control). Secondly, Pearson correlations were used in order to examine the relations between the belief-based and the direct measures of attitude toward behaviour, subjective norm, and perceived behavioural control. As we have seen in Chapter 3, the behavioural, normative and control beliefs provide the basis for the formation of attitudes towards the behaviour, subjective norm and perceived behavioural control respectively. The Pearson correlations among the components are shown in Table 6.33 below.

Table 6.33 - Pearson correlation for variables of the Theory of Reasoned Action and Theory of Planned Behaviour.

Variable	B	I	A	SN	PBC	B.A	B.SN	B.PBC
Behaviour (B)	1.00	.309**	.271**	.191*	.301**	.219**	.190*	.151*
Intention (I)		1.00	.625**	.506*	.678**	.540**	.369**	.318**
Attitude toward behaviour (A)			1.00	.553**	.556**	.633**	.394**	.367**
Subjective norm (SN)				1.00	.466**	.592**	.356**	.446**
Perceived behavioural control (PBC)					1.00	.513**	.408**	.374**
Belief-Based Attitudes (B.A)						1.00	.512**	.540**
Belief-Based Subjective Norm (B.SN)							1.00	0.508**
Belief-Based Perceived behavioural control (B.PBC)								1.00

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

As can be seen from Table 6.33, the correlations between the model components are significant and therefore are correlated positively with each other. Positive correlations were found between behaviour and the other four direct variables in the following order of increasing correlation: a) subjective norm (r=+.191), b) attitude toward behaviour (r=+.271), c) perceived behavioural control (r=+.301), and d) intention (r=+.309). In

addition, the components of the TRA and TPB were very positive associated with intention in the following increasing order: a) subjective norm (r=+.506), b) attitude toward the behaviour (r=+.625) and c) perceived behavioural control (r=+.678).

Furthermore, the direct variables of the TRA (i.e. attitude, subjective norm) and TPB (i.e. perceived behavioural control) were significantly inter-correlated. Amongst these three direct variables the strongest correlation occurred between attitude towards behaviour and perceived behavioural control (r=+.556). Additionally, for the indirect measures each belief-based factor was significantly correlated with their direct predictors of intention. More specifically, the correlation between the attitude toward the behaviour and the belief-based attitude was +.633. The correlation between the subjective norm and belief-based subjective norm was +.356. Finally, the correlation between the perceived behavioural control and belief-based perceived control was +.374. The results of these Pearson correlations are discussed in Section 6.4.

The above Pearson correlations can only tell us about the direction (negative or positive), and the strength of the relationship between the dependent variables (behaviour and intention) of the TRA and TPB and the independent variables (attitude toward the behaviour, subjective norm and perceived behavioural control). According to Ajzen (1991), in order to investigate the effects of attitude toward behaviour, subjective norm and perceived behavioural control on intention as well as the effects of intention and perceived behavioural control on behaviour a hierarchical regression analysis is needed to be performed. Therefore, the third step of the analysis of the TRA and TPB in this study was the hierarchical regression analysis. The results of this analysis are presented in the next section.

6.3.2 Prediction of Intention and Behaviour

As we have seen in Chapter 3, the TRA and TPB, hypothesise that the behavioural intention is influenced by a person's attitude toward the behaviour concerned and by his or her subjective norm. Furthermore, according to TPB, the perceived behavioural control forms the third predictor of intention.

In order to investigate the extent, to which the variables of the TRA and the TPB predict teachers' intention to use ICT in their teaching, two steps of hierarchical multiple regression analyses were performed. In the first step (Block 1) of regression analysis,

intention (dependent variable) was regressed on attitude and subjective norm (independent variables). This first step was based on the Theory of Reasoned Action. In the second step (Block 2) of regression analysis, intention (dependent variable) was regressed on attitude toward behaviour, subjective norm and perceived behavioural control (independent variables). This step of the analysis was based on the Theory of Planned Behaviour. Table 6.34 shows the model summary results, Table 6.35 shows the analysis of variance (ANOVA) and Table 6.36 shows the coefficients results of this analysis.

Table 6.34 - Model Summary (teachers' intention).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 "TRA" (a)	.654	.428	.421	.648
2 "TPB" (b)	.748	.560	.552	.570

a Predictors: (Constant), Subjective norm, Attitude toward behaviour
b Predictors: (Constant), Subjective norm, Attitude toward behaviour and perceived behavioural control

The prediction of the intention in both regression models (see Model 1 "TRA" and Model 2 "TPB") was assessed by inspecting the "Adjusted R^2" (see Table 6.34) and the contribution to the prediction of the independent variables was assessed by inspecting the standardized regression coefficients (*beta*) (see Table 6.35).

Table 6.35 - ANOVA(c) (teachers' intention).

Model		Sum of Squares	df	Mean Square	F	*p*
1 "TRA"	Regression	53.913	2	26.957	64.248	.000(a) *
	Residual	72.167	172	.420		
	Total	126.080	174			
2 "TPB"	Regression	70.566	3	23.552	72.454	.000(b) *
	Residual	55.514	171	.325		
	Total	126.080	174			

a Predictors: (Constant), Subjective norm, Attitude toward behaviour
b Predictors: (Constant), Subjective norm, Attitude toward behaviour, and perceived behavioural control
c Dependent Variable: Intention
* Significant (p<.05)

Table 6.36 - Coefficients(a) (teachers' intention).

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		B	*Std. Error*	*Beta*		
1 "TRA"	(Constant)	1.485	.430		3.452	.001*
	Attitude toward behaviour	.533	.074	.497	7.175	.000*
	Subjective norm	.224	.067	.231	3.340	.001*
2 "TPB"	(Constant)	1.637	.379		4.318	.000*
	Attitude toward behaviour	.326	.071	.304	4.565	.000*
	Subjective norm	.125	.061	.128	2.053	.042*
	Perceived behavioural control	.323	.045	.449	7.162	.000*

a Dependent Variable: Intention.
* Significant (p<.05).

As we can see in Table 6.34, attitude and subjective norm (see Model 1 "TRA") according to TRA model explained 42% (Adjusted R Square=42.1%) of the variance in teachers' intention to use ICT in their teaching, (F=64.248, p=.000, p<.05), with attitude toward behaviour and subjective norm provided significant contributions. Table 6.36 (see Model 1 "TRA") shows that attitude was the first important predictor (*beta*=.497, p<.05) of intention and subjective norm the second important predictor (*beta*=.231, p<.05).

The results in Table 6.34 (see Model 2 "TPB") show that when perceived behavioural control was added to the regression analysis, the explained variance increased from R^2=.42 to R^2=.55. In other words, this means that attitude, subjective norm and perceived behavioural control explained 55% of the variance in teachers' intention to use ICT in their teaching. Examination of the betas in Table 6.36 (see Model 2 "TPB") indicates that all variables, namely attitude toward behaviour, subjective norm and perceived behavioural control significantly predicted teachers' intention to use ICT in their teaching (p<0.05). Perceived behavioural control was the first strongest predictor of intention (*beta*=.449, p<.05). Attitude toward behaviour, while found to have the first strongest effect on intention in the TRA regression model, was the second strongest predictor in the TPB regression model (*beta*=.304, p<.05). The subjective norm was the third important predictor of intention (*beta*=.128, p<.05). The conclusions of these findings are presented in Section 6.4.2.1.

The data were analysed further in order to predict teachers' behaviour (the use of ICT in teaching). As we have seen in Chapter 3 (see Section 3.5.1 and 3.5.3), the TRA and TPB, hypothesise that the immediate determinant of behaviour is the individual's intention to

perform, or not to perform the behaviour. Furthermore, according to TPB perceived behavioural control, is supposed to influence behaviour both directly and indirectly through intention.

Two steps of hierarchical regression analysis were also used in order to predict the behaviour. In the first regression analysis (Block 1), behaviour (dependent variable) was regressed with intention (independent variable) in accordance with the TRA. In the second regression analysis (Block 2), behaviour (dependent variable) was regressed with intention and perceived behavioural control (independent variables) in accordance with the TPB. The results of the analysis are presented in Tables 6.37, 6.38 and 6.39.

Table 6.37 - Model Summary (teachers' behaviour).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 (TRA) (a)	.309	.096	.090	6.132
2 (TPB) (b)	.333	.111	.101	6.097

a Predictors: (Constant), Intention
b Predictors: (Constant), Intention, perceived behavioural control

Table 6.38 - ANOVA(c) (teachers' behaviour).

Model		Sum of Squares	df	Mean Square	F	*p*
1 (TRA)	Regression	687.618	1	687.618	18.284	.000(a) *
	Residual	6506.016	173	37.607		
	Total	7193.634	174			
2 (TPB)	Regression	799.085	2	399.542	10.747	.000(b) *
	Residual	6394.549	172	37.178		
	Total	7193.634	174			

a Predictors: (Constant), Intention
b Dependent Variable: Intention, perceived behavioural control
c Dependent Variable: Behaviour
* Significant (p<.05)

Table 6.39 - Coefficients(a) (teachers' behaviour).

		Unstandardized Coefficients		Standardized Coefficients	t	*p*
Model		B	Std. Error	Beta		
1 (TRA)	(Constant)	10.286	3.483		2.954	.004 *
	Intention	2.335	.546	.309	4.276	.000 *
2 (TPB)	(Constant)	10.634	3.469		3.066	.003 *
	Intention	1.468	.739	.194	1.986	.049 *
	Perceived behavioural control	.919	.531	.169	1.732	.085 **

a Dependent Variable: Behaviour
* Significant (p<.05)
* Not significant (p>.05)

The results of the first regression analysis (see Model 1 "TRA") presented in above tables show that intention was a significant predictor of behaviour. Intention explained 9% of the variance in ICT use behaviour. The beta of the intention was .309 (p<0.05).

The results of the second regression analysis (see Model 2 "TPB") presented in Tables 6.37, 6.38 and 6.39 indicate that together intention and perceived behavioural control explained 10% of the variance of ICT use behaviour and the model was statistically significant (F=10.747, p<0.05). Intention (*beta*=.194, p<.05) was a significant predictor of behaviour, while perceived behavioural control was not (*beta*=.169, p>.05). This finding is discussed in Section 6.4.2.1.

Therefore the above results provided empirical support for the predictive validity of TRA and TPB. All components of TRA and TPB were significantly related to intention. Adding the perceived behavioural control to the TPB regression analysis significantly improved the prediction of intention. This component was the strongest and the attitude was the second strongest predictor of the intention to use ICT. In TRA and TPB, the regression analysis indicated that intention significantly predicted teachers' use of ICT in their teaching. The perceived behavioural control component in TPB had no effect on behaviour. However, the perceived behavioural control influenced behaviour through the intention component (see Tables 6.3.6, 6.3.7 and 6.3.8). These results are discussed in Section 6.4.2.2.

6.3.3 Teachers' beliefs

As we have seen in Chapter 3, behavioural, normative and control beliefs play a central role in the Theory of Planned Behaviour. According to Ajzen (2002), these beliefs "are assumed to provide the cognitive and affective foundations for attitudes, subjective norms, and perceptions of behavioural control" (p. 7). "By measuring beliefs, we can, theoretically, gain insight into the underlying cognitive foundation, i.e., we can explore why people hold certain attitudes, subjective norms, and perceptions of behavioural control" (ibid. p. 8). Therefore, this study was designed not only to predict teachers' intention to use ICT and their actual use of ICT but also to identify and investigate the behavioural, normative and control beliefs that determine their intention and behaviour[1].

Table 6.33, in Section 6.3.1 showed that the beliefs of this study were correlated significantly with the direct measures (attitude, subjective norm and perceived behavioural control) of the theory. Therefore, this strong correlation between the beliefs and the direct measures of the TPB indicates that these beliefs were identified properly in the pilot study and were measured well in the main study. The next three sections present these beliefs and the results of the descriptive analysis as well as the correlation of each belief with the intention and behaviour.

6.3.4 Teachers' behavioural beliefs

As we have seen in Chapter 4 (see Section 4.6.1.2.7), the pilot study had identified 34 behavioural beliefs. For each of the 34 behavioural beliefs two items were designed, one a personal belief about the connection between the consequence and performance of the behaviour (behavioural belief strength) and one an evaluation of the consequence (outcome evaluation)[2]. Column "B" and "C" in Table 6.40 presents the mean and standard deviation for each belief strength and outcome evaluation. As we can be seen in column "A" these beliefs related to the various advantages and disadvantages of using of ICT in teaching for pupils, teachers and school.

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[1] In order to identify these beliefs a pilot study was conducted (see Section 4.5.2.2). Teachers were asked a series of questions, which are presented in Appendix E. Their responses were used to construct a list of the most commonly held beliefs. In turn, these beliefs provided the basis for constructing the questionnaire of beliefs that used in the main study (see Section 4.6.1.2 and Teacher Questionnaire, in Appendix A1).

[2] An example item of behavioural belief strength was: "using ICT in my teaching during the next three months will encrich my pupils' knowledge: extremely unlikely (1) – extremely likely (7)". An example item of outcome evaluation was: "Enriching my pupils' knowledge is: extremely bad (1) – extremely good (7)" (see Chapter 4, Section 4.6.1.2.7, and Teacher Questionnaire in Appendix A1).

Table 6.40 - Means (M) and standard deviations (SD) for behavioural belief strength and outcome evaluation, and correlations of belief - evaluation product with teachers' intention and behaviour to use ICT in teaching.

A		B		C		D	
Using Information Communication Technology in my teaching during the next three months will...		**Belief strength (b)**		**Outcome evaluation (e)**		**Correlation**	
		M	***SD***	***M***	***SD***	$b_i e_i$ with intention	$b_i e_i$ with behaviour
1	Enrich my pupils' knowledge.	6.51	0.742	6.66	0.683	.342**	.158*
2	Enable me to help the weak pupils improve.	6.18	1.123	6.74	0.511	.467**	.179*
3	Help my pupils learn more easily.	6.25	1.035	6.81	0.488	.543**	.134
4	Make the lesson more fun for the pupils.	6.61	0.677	6.91	0.308	.551**	.111
5	Increase pupils' interest in learning.	6.62	0.771	6.91	0.301	.561**	.140
6	Stimulate creativity in pupils.	6.31	0.981	6.87	0.381	.518**	.262**
7	Significantly improve the overall quality of my pupils' education.	6.17	0.906	6.86	0.377	.534**	.145
8	Be a waste of time for pupils.♠	6.50	1.066	6.79	0.621	.332**	.104
9	Help pupils work with one another.	5.99	1.282	6.82	0.500	.473**	.241**
10	Help my pupils to find a job easier in future.	6.22	1.024	6.79	0.583	.445**	.047
11	Help me improve my ICT expertise.	6.43	0.848	6.69	0.692	.347**	.110
12	Allow me greater access to a computer for personal and professional use.	6.31	1.212	6.73	0.761	.248**	.019
13	Make my lessons more interesting for me.	6.35	0.878	6.74	0.650	.393**	.112
14	Make the lessons more enjoyable for me.	6.17	0.893	6.71	0.668	.411**	.131
15	Make my lessons more diverse.	6.53	0.764	6.74	0.634	.428**	.163*
16	Make preparation of lessons easier.	5.66	1.656	6.72	0.631	.157*	.110
17	Help me organise my lessons better.	6.12	1.256	6.81	0.484	.276**	.104
18	Make preparation for lessons more time – consuming. ♠	4.87	2.093	6.35	0.988	.196**	.056
19	Restrict the content of my lessons. ♠	5.56	1.987	5.77	1.662	.252**	.124
20	Make it more difficult to control the class. ♠	5.59	1.602	6.51	0.883	.337**	.119
21	Give me more prestige.	5.54	1.653	6.23	1.205	.335**	.126
22	Improve my productivity.	5.79	1.436	6.67	0.698	.350**	.157*
23	Cause conflicts with my colleagues. ♠	5.24	2.090	6.61	1.174	.251**	.116
24	Restrict my role as a teacher. ♠	5.83	1.857	5.47	1.959	.206**	.195**
25	Help me communicate with colleagues in other schools.	6.37	0.961	6.58	0.978	.342**	.179*
26	Save me more time and work.	4.41	2.203	5.91	1.489	.042	-.027
27	Cause me stress. ♠	5.57	1.680	6.66	0.842	.381**	.182*
28	Improve the communication among the pupils and me.	5.55	1.607	6.82	0.492	.311**	.126
29	Create problems in the current curriculum. ♠	5.02	2.054	5.73	1.602	.179*	.087
30	Create problems in the school timetable. ♠	5.27	2.097	6.18	1.235	.481**	.287**
31	Support the communication of my school with other schools in Greece and abroad.	6.16	1.178	6.70	0.682	.323**	.117
32	Help school's better organisation.	6.10	1.305	6.82	0.515	.252**	.101
33	Help the school's personnel to cooperate.	4.93	1.860	6.77	0.551	.098	.116
34	Help my school to implement other innovations.	6.37	1.074	6.86	0.397	.295**	.088

Notes: ♠ *Items for which the scoring was reversed. Behavioural belief strength and outcome evaluation scored from 1 to 7.*
$b_i e_i$ each Behavioural Belief (BB) was multiplied with Outcome Evaluation(OE) (BB x OE) (see Chapter 4, Section 4.7.4.1)
** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

Considering the results in column "A", many of the advantages for using ICT in teaching listed by the teachers focused on making lessons interesting and fun for pupils and helping pupils learn more easily. For instance, some of these beliefs were "enrich my pupils' knowledge", "help my pupils' learn more easily", "stimulate creativity in pupils", and "help pupils work with one another". Some of the advantages for teachers were the following: "allow me greater access to a computer for personal and professional use", "make my lesson more interesting, enjoyable and diverse for me", make preparation of lesson easier" and "help me organise my lessons better". Finally, the advantages for school included "support the communication of my school with other schools in Greece and abroad" and "help my school to implement other innovations".

Teachers were concerned about the time and effort it took to plan for lessons. In addition, they reported that the use of ICT in their teaching cause conflicts with their colleagues, "make it more difficult to control the class", cause them stress and restrict their role as a teacher. Furthermore the disadvantages for the school were the following: "create problems in the current curriculum" and "create problems in the school timetable".

As we can see in columns "B" and "C" teachers held very positive beliefs about the outcomes of using ICT in their teaching and they also evaluated all of the outcomes very positively[1]. According to "belief strength" column (see column "B"), the three most important beliefs about using ICT in teaching were "increase pupils' interest in learning" (M=6.62, SD=0.771), "make lesson more fun for the pupils" (M=6.61, SD=0.677) and "enrich my pupils' knowledge" (M=6.51, SD=0.742). On the other hand, "Save me more time and work" (M=4.41, SD=2.203), "make preparation for lessons more time-consuming" (M=4.87, SD=2.093) and "help the school's personnel to cooperate" (M=4.93, SD=1.860) were the least important beliefs for teachers. According to "outcome evaluation" column (see column "C"), the beliefs "make the lesson more fun for the pupils" (M=6.91, SD=0.308) and "increase pupils' interest in learning" (M=6.91, SD=0.301) were evaluated very highly (extremely good) by teachers in comparison with the other beliefs. The belief "restrict my role as a teacher" (M=5.47, SD=1.959) was evaluated relatively less highly by teachers.

[1] Any mean value higher than 5 in behavioural, normative and control beliefs of this chapter as well as of Chapter 8 indicates that the majority of respondents agreed or strongly agreed with the statement.

Behavioural beliefs were analysed further. Each belief strength and outcome evaluation measure was multiplied and the products were correlated with intention and behaviour. These correlations are presented in the last column (see column "D") in Table 6.42. As we can be seen in this column all behavioural beliefs (except two, see item 26 and 33) significantly correlated with intention. In addition, ten of these beliefs correlated with teachers' use of ICT in their teaching. These beliefs included "create problems in the school timetable" (r=+.287), "stimulate creativity in pupils" (r=+.262) and "help pupils work with one another" (r=+.241). The behavioural beliefs are discussed in detail in Section 6.4.2.3.

6.3.5 Teachers' normative beliefs

This study had identified 12 referents (see Chapter 4, see Section 4.6.1.2.8). These referents included many of the persons and groups who have relation with schools in the Greek educational system. As we can be seen in Table 6.41 (see column "A") among the referents that teachers thinks that approve of the use of ICT in their teaching were their head teacher, district officer and school counsellor.

Table 6.41 - Means (M) and standard deviations (SD) for normative belief strength and motivation to comply, and correlations of belief - motivation product with teachers' intention and behaviour to use ICT in teaching

A		B		C		D	
Normative referent		**Belief strength (n)**		**Motivation to comply (m)**		**Correlation**	
(Persons/organisation perceived to influence teachers' use of ICT)		***M***	***SD***	***M***	***SD***	***n,m,*** with intention	***n,m,*** with behaviour
1	My head teacher.	6.57	0.867	6.06	1.251	.195**	.017
2	My school counsellor.	6.18	1.312	5.76	1.313	.238**	.124
3	My district officer.	6.06	1.374	5.58	1.427	.253**	.122
4	Parent's association	6.32	0.929	5.44	1.367	.303**	.238**
5	My pupils.	6.44	0.875	6.28	0.939	.399**	.135
6	My colleagues.	5.79	1.294	5.42	1.238	.320**	.173*
7	The Ministry of Education.	6.35	1.045	5.71	1.189	.323**	.042
8	Private computer companies.	6.36	1.204	3.85	2.129	.134	.089
9	The Pedagogical Institute (of the Ministry of Education)	6.53	0.934	5.81	1.188	.383**	.185*
10	Universities.	6.56	0.855	6.07	1.061	.365**	.146
11	Local authorities (Municipality, Prefecture).	5.63	1.686	5.05	1.618	.188**	.209**
12	Greek primary teachers' federation.	5.89	1.358	5.17	1.550	.238**	.162*

Notes: Normative belief (NB) strength and motivation to comply (MC) scored from 1 to 7.
n,m, each normative belief was multiplied with each motivation to comply (NB × MC) (see Chapter 4, Section 4.7.4.1)
*** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).*

As was discussed in Chapter 4 (see Section 4.6.1.2.8) in the main study with respect to each of these 12 referents, two items assessed normative belief strength and motivation to comply[1]. Table 6.41 shows the means and standard deviations of these items (see column "B" and "C"). Inspection of belief strength column (see column "B") shows that teachers felt a pressure to use ICT in their teaching from all 12 referents. The strongest influence was from their head teacher (M=6.57, SD=0.867) and the relative weakest influence from their colleagues (M=5.79, SD=1.294).

An inspection of the motivation to comply column (see column "C") indicates that teachers were more motivated to comply with "pupils" (M=6.28, SD=0.939), "universities" (M=6.07, SD=1.061) and "head teacher" (M=6.06, SD=1.251). This column also show that teachers were less motivated to comply with "private computer companies" (M=3.85, SD=2.129).

Finally, each normative belief strength was multiplied with a motivation to comply and the products were correlated with intention and behaviour. The results of these correlations are presented in last column (see column "D") in Table 6.41. This column shows that all referents except private computer companies significantly correlated with intention. "My pupils" had the highest correlation (r=+.399) and "local authorities (Municipality, Prefecture) the lowest (r=+.188). A significantly positive relationship was found between behaviour and five of the referents. "Parents' association" had the strongest correlation with behaviour (r=+.238) followed by "local authorities (Municipality, Prefecture)" (r=+.209), "the Pedagogical Institute (of the Ministry of Education)" (r=+.185), "my colleagues" (r=+.173) and "Greek primary teachers' federation" (r=+.162). The above results are discussed in Section 6.4.2.4.

6.3.6 Teachers' control beliefs

The control beliefs identified in the pilot study and measured in the main study can be seen in Table 6.42 (see column "A"). These control beliefs can be divided into those that related to a) software, hardware, and technical assistance, b) support from executives of education, parents, Ministry of Education and local authorities and c) those that related to

[1] An example item of normative belief strength was: "My head teacher thinks that: I should (7)-I should not (1) use ICT in my teaching during the next three months". An example item of motivation to comply was: "Generally speaking, how much do you want to do what your head teacher thinks you should do? not at all (1)-very much (7)" (see Section 4.6.1.2.8, and Teacher Questionnaire in Appendix A1).

financial support, training opportunities and curriculum and time issues. For each of the 20 control beliefs two items were designed (see Chapter 4, Section 4.6.1.2.9).

Table 6.42 - Means (M) and standard deviations (SD) for control belief strength and power of control factor, and correlations with teachers' intention and behaviour to use ICT in teaching.

A		B		C		D	
Control factors to facilitate teachers' ICT use		**Control belief strength (c)**		**Control belief power (p)**		**Correlation**	
		M	***SD***	***M***	***SD***	cp_i with intention	cp_i with behaviour
1	Sufficient number of computers and peripherals (e.g. printer).	6.27	1.002	6.86	0.434	.304**	.080
2	Enough software for teaching purposes.	6.03	1.116	6.81	0.564	.135	.085
3	Technical assistance for operating and maintaining computers.	5.89	1.351	6.85	0.402	.093	.012
4	Adequate financial support for teachers.	2.19	1.484	6.78	0.569	-.011	.299
5	An appropriate computer room.	6.33	0.931	6.90	0.316	.245**	.095
6	A small number of pupils in my class.	3.37	2.123	6.82	0.515	-.088	.002
7	Enough computer time for my class.	5.40	1.626	6.82	0.477	.354**	.105
8	Computers' use will be integrated in the existing prescribed class curriculum.	5.60	1524	6.84	0.439	.401**	-.023
9	Enough time to develop lessons in which computers are used.	5.60	1.291	6.82	0.468	.371**	.161*
10	Support will be provided by the head teacher.	6.52	0.801	6.89	0.369	.271**	.119
11	Support will be provided at my school by the district officer.	5.93	1.276	6.79	0.570	.195**	-.023
12	Support will be provided at my school by the school counsellor.	5.89	1.281	6.79	0.590	.256**	.047
13	Support will be provided at my school by the colleagues.	5.55	1.507	6.73	0.736	.234**	.097
14	Support will be provided at my school by the parents' association.	5.64	1.478	6.76	0.678	.264**	.212**
15	Support will be provided by the Ministry of Education.	5.47	1.504	6.77	0.632	.188*	.072
16	Support will be provided by the Pedagogical Institute.	5.53	1.523	6.82	0.526	.178*	.084
17	Support will be provided by the local authorities (Municipality, Prefecture).	3.86	1.972	6.69	0.748	.115	.156*
18	My pupils will want to use ICT.	6.59	0.645	6.90	0.402	.366**	.182*
19	Enough connections to the Internet.	6.30	1.255	6.90	0.382	.021	.002
20	Sufficient training opportunities on the pedagogical use of ICT.	5.77	1.405	6.91	0.360	.085	.065

Notes: Control belief and control belief power scored from 1 to 7. $c_i p_i$ Each control belief was multiplied with each control belief power (CB × CP) (see Chapter 4, Section 4.7.4.1).

** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

In the first item teachers assessed the control belief strength and in the second item teachers assessed the perceived power of the control factor[1]. Column "B" and "C" in Table 6.42 shows the mean and standard deviation for each control belief strength and control belief power. Generally, teachers scored the control beliefs high reflecting the high degree of control they felt over the use of ICT in their teaching. On the one hand, column "B" in Table 6.42 shows that teachers perceived that specific control factors will be available during the next three months in order to facilitate them in the using of ICT in their teaching.

Among the most important factors were "My pupils will want to use ICT" (M=6.59, SD=0.645), "Support will be provided at my school by the head teacher" (M=6.52, SD=0.801), "An appropriate computer room" (M=6.33, SD=0.931), and "Enough connections to the Internet" (M=6.30, SD=1.255). On the other hand, column "B" in Table 6.44 shows that teachers perceived that specific control factors will not be available during the next three months in order to facilitate them in the use of ICT in their teaching. These factors were: a) "adequate financial support" (M=2.19, SD=1.484), b) "a small number of pupils in my class" (M=3.37, SD=2.123), and c) support from local authorities (M=3.86, SD=1.972). Column "C" in Table 6.42 shows that all factors were evaluated very high, which this means that teachers believed that all these factors will make their use of ICT in their teaching much easier. The implications of these varied results are discussed in Section 6.4.2.5.

Each control belief strength was multiplied with a control belief power and the products correlated with intention and behaviour. Column "D", in Table 6.42 shows these correlations. Thirteen (13) of 20 beliefs positively correlated with teachers' intention to use ICT in their teaching. Among these beliefs were those that had relation with head teachers', district officers' and school counsellors' support (see items 1, 5, 7, 8, 10, 11, 12). The control factors "enough time to develop lessons in which computers are used" (r=+.161), "Support will be provided at my school by the parents' association" (r=+.212), "Support will be provided by the local authorities (Municipality, Prefecture)" (r=+.156)

[1] An example item of control belief strength was: "I expect that sufficient number of computers and peripherals (e.g. printer) will be available at my school during the next three months: strongly disagree (1)-strongly agree (7)". An example item of control belief power was: "The availability of sufficient number of computer and peripherals (e.g. printer) at my school during the next three months would make it: much more difficult (1)-much easier (7) for me to use ICT in my teaching (see Section 4.6.1.2.9, and Teacher Questionnaire in Appendix A1).

and "My pupils will want to use ICT" (r=+.182) were significantly positively related to teachers' actual use of ICT in their teaching (behaviour). The next section discusses the conclusions that have emerged from teachers' attitudes towards computer attitudes and their intention to use ICT in their teaching.

6.4 DISCUSSION AND CONCLUSIONS

The conclusions that were drawn from this study are presented below and discussed in relation to previous findings of other studies in two main parts. Part 1 presents and discusses the conclusions of teachers' attitudes towards computers. Part 2 presents and discusses the conclusions of teachers' intention to use ICT as well as their actual use in their teaching.

6.4.1 Part 1: Teachers' attitudes towards computers

As we have seen in Chapter 4 (see Section 4.2), one of the objectives of this study was to measure teachers' attitudes towards computers. Based on the mean score of the whole attitude scale and the eight attitude subscales presented in Section 6.2, it becomes apparent that teachers who participated in this study had very positive attitudes towards computers.

Teachers scored relatively very highly in all computer attitudes subscales. The Computer usefulness subscale had the highest mean score (M=4.47) indicating that teachers felt that computers are useful in education. A high score was also reported in the subscale of training needs (M=4.43). This means that while the majority of teachers have had some sort of training (see Chapter 5, Section 5.9), they were highly motivated to learn more about computers. Computer anxiety also had a high mean score (M=4.38) which suggests that teachers who were using computers in their teaching had low level of anxiety. This finding is important as literature findings suggest that high computer anxiety cause the avoidance of computer use in general (Russel and Bradley, 1997; Brosnan, 1998; Weil and Rosen, 1995; Heinssen et al., 1987).

Moreover, the results of this study illustrate that the lower mean score (M=4.02) was found in the use of e-mail subscale. This may be due to the fact that a small number of schools, as discussed in Chapter 5 (see Section 5.5.5), had no access to the Internet and at the schools where access to the Internet was provided, the teachers did not make great use of e-mail in their teaching (M=0.7).

The finding concerning teachers' positive attitudes towards computers is consistent with findings of other studies, mentioned in Chapter 2. For example, Pelgrum and Plomp (1991) who studied 22 educational systems, found that teachers who used computers in their teaching had in general quite positive attitudes towards computers. In addition, more recently, Williams et al., (2000) found that primary and secondary teachers in schools of Scotland had generally positive attitudes towards ICT.

The data were analysed using one way Anova and Pearson correlations in order to examine any differences and relationships between attitudes and other variables, including age, years of teaching experience, knowledge and training about computers. The main conclusions of this analysis are discussed in the following sections.

6.4.1.1 Gender and attitudes towards computers

Analysis of attitude data (see Section 6.2.1) showed that although male teachers had a higher attitude mean score than female teachers, this difference was not significant. This finding is supported by some other studies where no gender differences were found for computer attitudes of teachers (e.g. Woodrow, 1991; Shapka and Ferrari, 2003).

On the other hand, there are some studies at the end of '80s that found that there were significant differences between attitudes of men and women teachers (e.g. Rosen and Weil, 1995; Whitley, 1997). These studies found that men had more opportunities to use computers than women (e.g. Marcinkiewicz, 1994; Sheffield, 1996). However, since then there has been much more equal access to computers.

This equal access might explain why no differences were found between males and females in the present study. More specifically, the possible reason that there is equal access to a computer is the increased use of computers in Greece at the end of the '90s. The widespread use of email and Internet during the last decade, ICT use in Greek university undergraduate, postgraduate and teachers' training programmes had provided equal opportunities for experience in ICT for both genders. Furthermore, another possible reason is that, as mentioned in Chapter 5, the 72 schools had already been using computers for some years (i.e. one to three years) before the study began. ICT was part of school culture and therefore teachers of both sexes had had experience of using ICT and equal opportunities to use ICT. In addition, all participants used ICT in their teaching, attended training courses and the majority of them had a computer at home (see Chapter

5, Section 5.8.1). Therefore, one would not expect to see gender differences in teachers' attitudes towards computers.

6.4.1.2 Age and attitudes towards computers

The results of Section 6.2.2 showed that teachers in the age group 31-35 had significantly more positive attitudes than teachers in the 46-over 50 age group. The difference between age and attitudes towards computers in the age group 31-35 could be explained by the fact that this age group will have had more opportunities to be exposed to ICT during their pre-service and in-service education compared to older teachers who did not have many opportunities to use computers. As noted earlier, an increased use of computers took place in undergraduate and postgraduate studies during the last decade, which provides evidence to suggest that ICT had an impact on this group of teachers' learning and teaching experiences. This finding implies that the 46+ age group maybe needs more support and training in order to improve their attitudes towards computers.

6.4.1.3 Qualifications, teaching experience and attitudes towards computers

In the present study no statistically significant difference between teachers' qualifications and attitudes towards computers was found (see Sections 6.2.3 and 6.2.4). This finding is supported by a recent study by Rainbow and Sadler-Smith, (2003) who found no qualification differences for computer attitudes of undergraduate students. In addition, in the present study there were no differences in the computer attitudes of teachers on the basis of their teaching experience.

These findings show that computer attitudes are not dependent on teachers' qualifications and teaching experience. The fact that no differences were found between teachers' qualifications, teaching experience and their attitudes towards computers could be explained by the fact that, the 72 schools used in this study introduced ICT in teaching through their voluntary involvement in initiatives. Due to this involvement, the teachers of these schools, with a variety of qualifications had received the same training in the use of ICT and were also motivated to work with these projects. Therefore, one would not expect to see a significant impact of qualifications and teaching experience on teachers' attitudes towards computers.

6.4.1.4 Years of service within the same school as a teacher and attitudes towards computers

In Section 6.2.5 the Scheffe Post Hoc test indicated that teachers who worked in their schools for one to five years had more positive attitudes towards computers than the ones who worked for 11 to 15 or over years. This means the teachers with fewer years of service within the school tended to have more positive attitudes. One possible explanation for this finding is that the teachers who worked for 11 to 15 or over years in the same school belonged into the 46-over 50 age group. As we have seen in Section 6.4.1.2 this age group had significantly less positive attitudes than teachers in the age group 31-35. In addition, the teachers who worked in their schools for one to five years maybe felt more comfortable and enthusiastic with computers generally than teachers with many years.

One implication finding is that those developing professional development courses should take account of the fact that they need to encourage the positive attitudes, particularly for those teachers who may have been in a school a long time. For example, the teachers of this study in 11-over 15 year of service group may need different training activities and support compared to those in 1-5 year of service group.

6.4.1.5 School's geographical area and attitudes towards computers

Teachers whose schools were located in either urban or rural areas had statistically significant higher positive attitudes towards computers than teachers whose schools were located in semi-urban areas (see Section 6.2.6).

In order to find why this difference occurred, four different factors were examined in the data. These were the size of the school, computer/pupil ratio, age of teachers and length of service. While examining the evidence, it is important however to point out that the results from this examination cannot give information about this difference. Most specifically, the examination gives no evidence that the above four factors actually led to less positive attitudes towards computers for teachers whose schools were located in semi-urban areas. Further research is needed to identify what factors influence the attitudes towards computers for teachers whose schools were located in semi-urban areas.

6.4.1.6 Access to a computer for personal use outside of school and attitudes towards computers

The results of the present study (see Section 6.2.7) indicated that teachers who already used computers outside of their work place had the most positive attitudes towards computers. These findings are supported by recent studies. More specifically, a number of studies have shown that those primary teachers (e.g. Williams et al., 1998) or other individuals (e.g. Yaghi, 1997; Colley et al., 1994) who have access to computers at home demonstrate more positive attitudes toward computers.

This suggests that by improving teachers' experience of ICT outside of the work place it should be possible to enhance their overall attitudes towards computers and enable them to feel more comfortable with ICT. Therefore, the Ministry of Education should financially help teachers to purchase a computer at home and advise head teachers, district officers and school counsellors to encourage their teachers to use the home computer for personal and educational purposes (e.g. to prepare lessons).

6.4.1.7 School's ICT type of use and attitudes towards computers

Section 6.2.8 showed a significant statistical difference between computer attitudes of the teachers in relation to their ICT type of use in their teaching. The results showed that teachers' positive attitudes in using ICT as a subject were significantly higher than teachers in the group of using ICT as a tool.

There could be several reasons why teachers using ICT as a subject had more positive attitudes towards computers in comparison with the group of teachers using ICT as a tool. One of the reasons could be related to their educational background. As we have seen in Chapter 5 (see Section 5.2.3), the teachers who taught ICT as a separate subject did not possess the Primary Education teacher's degree as their first degree. Their degrees came from the Faculties of Mathematics, Informatics or Physics. The results of previous studies have shown that mathematics and science teachers use computers more often and therefore they have more positive attitudes (e.g. Pelgrum and Plomp, 1991). The reason might be that these teachers had more computer experience in their university studies than the other teachers. Therefore, one would expect to see that teachers who taught ICT as a separate subject have more positive attitudes towards computers.

Furthermore, these results might be due to the difference in duration of the lessons, but also due to the difference in approach to teaching and the teachers' experience about using ICT. This implies that the school's type of ICT use may be a factor that affects teachers' attitudes towards computers.

6.4.1.8 Pupil year groups where teachers used ICT and attitudes towards computers

The results of the present study also showed that teachers who used computers in their teaching in Year 1 group (1st pupils' year) had more positive attitudes towards computers than teachers who used computers in Year 4 (see Section 6.2.10).

This finding could be due to different contents of the lessons in year groups as well as in different teaching approaches that teachers may have used in their use of ICT in teaching. Furthermore, this could be due to the small size of the sample in the category of teachers in Year 1 group (i.e. there were only seven teachers out of 181). It is possible that a larger size in this sample would produce different results.

6.4.1.9 Relationships between teachers' knowledge about computers and their attitudes towards computers

All categories of knowledge about computers (knowledge concerning computers, ICT abilities, knowledge about the use of ICT in teaching) showed positive relationships with the total score of attitudes and all eight attitudes' subscales, meaning that more computer knowledge was related to more positive computer attitudes (see Section 6.2.11). Knowledge concerning computers was moderately correlated with computer confidence subscale (r=+.571) as well as ICT abilities (r=+.563) and knowledge about the use of ICT in teaching (r=+.616) was moderately correlated with anxiety subscale. Therefore, we can conclude that either teachers need to know more about computers if they are to have a positive attitude towards them or teachers who have more positive attitudes towards computers are likely to have more knowledge about computers. This finding supports other previous researchers (e.g. Summers, 1990, Kay, 1993) who found that more knowledge about computers is related to more positive attitudes towards computers.

These findings have implications for ways to support teachers' attitudes towards computers connected to their knowledge about computers, their ICT abilities as well as

their knowledge about the use of ICT in teaching. In order to enhance teachers' learning about computers and ICT skills in using computers as well as ICT's use in teaching, efforts should be made to allow primary schools teachers as much computer exposure and experience as possible both within the school environment and outside it. Such efforts are connected to computer training etc. – an issue, which is discussed in the following section.

6.4.1.10 Relationships between teachers' training received and their attitudes towards computers

In Section 6.2.12 teacher training scores showed a positive relationship with the total score of attitudes as well as with seven of the eight attitudes subscales meaning that more hours of training on computers were related with more positive attitudes towards computers. However, these correlations were small and therefore not very significant; the minimum r value was +.156 and the maximum r value being +.226. It is worth noting that these correlations do not imply causation but they can tell us only about the direction (i.e. positive), and the strength of the relationship between the variables. Given this therefore, we can conclude that either more hours of computer training may lead to more positive attitudes towards computers or teachers who have more positive attitudes towards computers may tend to attend more hours of computer training.

These findings have implications for supporting teachers in using computers in their teaching practices. Specifically, these findings lead us to suggest that computer courses should be mandatory for all teachers, regardless of their ICT skills and experiences in using computers in their teaching. In fact, the previous findings by Rhodes and Cox (1990) and Preston et al., (2000) showed that the most effective training leading to the uptake of ICT by primary and secondary school teachers was long award bearing courses rather than short school courses. Based on this research evidence, the results here suggests that it more effective to engage teachers in long-term training sessions, in order to support them in using computers, which in turn will lead to the development of positive attitudes towards computers.

6.4.1.11 Relationships between teachers' use of ICT in teaching and their attitudes towards computers

As we have seen in Section 6.2.9, in order to find any differences between attitudes towards computers generally and the frequency of ICT use in teaching, teachers were

divided into low, medium and high use groups based on scores for use of ICT in their teaching. As might be expected the research found that high frequency users were more favourable than low frequency users. This finding implies that more computer use results in more positive computer attitudes.

Pearson correlation analysis in Section 6.2.13 revealed that positive attitudes towards computers were positively associated with the frequency use of ICT in teaching. This means that the teachers with the most positive attitudes tended to use ICT in their teaching more often.

This finding is similar to that of previous studies in preservice teachers (e.g. Woodrow, 1991, Shapka and Ferrari, 2003) and teachers' attitudes (e.g. Pelgrum and Plomp, 1991, 1993, Williams et al., 2000) that indicated the degree of computer usage was positively related to positive attitudes towards computers. This finding suggests that by improving teachers' attitudes towards computers it should be possible to enhance their frequency of ICT use in their teaching.

As we have seen in Chapter 4 (see Section 4.1), one of the objectives of this study was to measure teachers' attitudes towards computers. In summary, the results of this chapter showed that the 181 teachers of this study had positive attitudes towards computers. The results also showed that the teachers who had relatively the less positive attitudes towards computers were those over 45 year and those who worked in the same school for 11 to 15 or over years. Furthermore, the results showed that teachers whose schools were located in urban and rural areas had statistically significant higher attitudes towards computers than teachers whose schools were located in semi-urban areas. In addition, more positive attitudes were held by those teachers that had access to a computer at home and those that used ICT in their teaching very often. Finally the findings of the Pearson correlations suggest that the most important factors that positively correlated with attitudes towards computers were more knowledge and skills about computers, more hours of computer training and frequently the use of ICT in teaching.

6.4.2 Part 2: Teachers' intention and behaviour to use ICT in their teaching (Theory of Reasoned Action and Theory of Planned Behaviour)

This study used the TRA and TPB in order to predict and explain teachers' intention to continue to use ICT in their teaching as well as their actual use. In addition these theories

were used in order to examine through the normative and control beliefs components the role and the influence of head teachers, district officers and school counsellors on teachers' intention and behaviour.

6.4.2.1 Prediction of intention

Overall, with respect to the TRA and TPB variables, teachers had positive values indicating a tendency to be favourable towards using ICT in their teaching. The 175 Greek teachers that used ICT in the 72 schools, had very positive attitudes towards using ICT in their teaching, perceived strong social pressure to use ICT, had a positive perception of their control over the use of ICT in teaching and strongly intended to continue to use ICT in their teaching.

The results also showed that there were positive relationships between the intention and the independent variables. Perceived behavioural control was strongly correlated with intention. A more favourable attitude towards using ICT in teaching was correlated to a stronger intention. In addition, highly positive subjective norms towards using ICT were also significantly correlated to the intention to use ICT. These positive correlations mean that when teachers' attitudes, the pressure from others and the control of the factors increase then the intention to use ICT also increases.

The results of the two hierarchical regression analyses showed that all components of TRA and TPB were found to be good predictors of teachers' intention to continue to use ICT in their teaching. In fact, about half of the variation in the intention to use ICT could be explained by the two models. More specifically, in the TRA model, one of the findings of the study was that the intention to use ICT in teaching was significantly influenced by the attitudes towards using ICT in teaching and their subjective norms. Attitude was the strongest predictor of intention, followed by subjective norm. This TRA model explained 42.1% of the variance in teachers' intention. Another finding of this study is that including the perceived behavioural control in the second regression analysis of the TPB model as a predictor of the behavioural intention resulted in a significant increase in the explained variation (Adjusted R Square=55%) over the amount explained by the TRA. Perceived behavioural control was the best predictor of intention, followed by attitude and subjective norm. Therefore, these findings show that attitude, subjective norm and perceived behavioural control contributed to the prediction of teachers' intention to continue to use ICT in their teaching. In addition, these results confirm the predictive

utility of the TRA and TPB in relation to teachers' intention and indicate that the TPB model is superior to the TRA model.

The finding that perceived behavioural control was the best predictor of intention is consistent with the findings of previous studies (see Armitage and Conner, 2001). In addition, the findings of the present study confirm research showing that attitudes towards behaviour have a significant influence on behavioural intention (see Ajzen, 1991; Armitage and Conner, 2001). Subjective norm was a strong determinant of intention in the TRA model; however, it failed to maintain its second contribution when it was also combined with perceived behavioural control in the TPB model. This finding is consistent with previous TPB studies that found subjective norm to be less important in predicting people's intention as compared to attitude toward the behaviour and perceived behavioural control components (see Armitage and Conner, 2001; Godin and Kok, 1996).

The findings of this study suggest that teachers will not continue to use ICT in their teaching unless they have very positive attitudes towards using ICT in teaching. These findings imply that a way to influence teachers' intention to continue to use ICT in their teaching could be by supporting the development of teachers' positive attitudes towards the use of ICT in teaching. Therefore, the challenge for the educational policy of ICT to promote the use of ICT in schools is to reinforce the positive attitudes of those primary teachers who already use ICT in their teaching and to change the attitudes of those teachers who have less positive attitudes towards using ICT in teaching.

Another important implication of the findings of this study is the one associated with the influence of the subjective norm on teachers' intention to use ICT. As the findings of this study showed, a favourable opinion of other persons or organisations increases the intention to use ICT in teaching. Therefore, the most efficient way to increase the use of ICT among teachers is to influence the opinion of other important persons and inform those about the advantages of ICT use in teaching. This issue is discussed in further detail in Section 6.4.2.4.

Moreover, other implications of the findings of this study are connected with the perceived behavioural control. In general, perceived behavioural control refers to the perceived ability to perform a specific behaviour. The findings of this study showed that in order to support teachers in using ICT in their teaching, there needs to be provision of

the conditions that influence their perceived behavioural control. This suggests that when teachers are provided with the appropriate resources (e.g. sufficient number of computers, software for teaching purposes) and opportunities (e.g. professional development) to use ICT leads to having a stronger intention to use ICT in their teaching.

6.4.2.2 Prediction of behaviour

As we have seen in Section 6.3, another objective of the present study was to investigate the influence of intention and perceived behavioural control on teachers' actual use of ICT in their teaching (behaviour). Pearson correlation results showed that intention and perceived behavioural control were positively correlated with behaviour. This means that when teachers had strong intentions and perceived high behavioural control, the use of ICT was high as well.

Overall, the results from the hierarchical regression analysis showed that teachers' actual use of ICT was predicted by the TRA and TPB components. Specifically, in the TRA model, intention explained 9% of the variance in teachers' behaviour. When the perceived behavioural control was added to the regression model of the TPB, the explained variance increased from 9% to 10%. In the TPB model, intention appeared to be a significant predictor of behaviour, while perceived behavioural control was not (beta was >0.05, see Table 6.39 in Section 6.3.2); although it was significantly and positively correlated with behaviour. This finding indicates that the proportion of behaviour prediction was low. This finding means that 90% of the variance of teachers' behaviour, remains to be explained. This issue is discussed further in Chapter 9 (see Section 9.5.1).

In contrast to findings from a large number of previous studies (e.g. Armitage and Conner, 2001; Godin and Kok, 1996) perceived behavioural control in this study failed to emerge as a significant predictor of teaching behaviour independently of the effect of intention. One possible explanation for the fact that perceived behavioural control was not shown to influence ICT use (from the regression analysis explained above) is that teachers' ICT use may not depend on whether or not teachers had control over the factors that facilitated ICT use in teaching. More specifically, these teachers in the present study used ICT in their teaching and therefore were experienced ICT users. It is possible that the measures of perceived behavioural control will be more appropriate for explaining the behaviour of those teachers who do not use ICT or do not have the appropriate resources

and opportunities (i.e. computers, software, training programmes, technical support) to use ICT in their teaching.

From the policy point of view, the most interesting issue is how to influence teachers' behaviour. These findings show that teachers' intention to use ICT and not their perceived behavioural control, most strongly influences their behaviour of using ICT in their teaching. It is obvious that teachers did not need feelings of high control to use ICT in their teaching. Hence, educational policy aiming at increasing ICT use should explore ways of strengthening teachers' intention of using ICT in their teaching. A change of teachers' intention with ICT use and ability to control the performing behaviour might increase ICT use in teaching behaviour.

6.4.2.3 Teachers' behavioural beliefs

The majority of teachers reported very positive beliefs towards ICT use in their teaching, and all of these beliefs were strongly associated with intention to use ICT in teaching, except one (save me more time and work). In addition, however only nine of the 34 beliefs correlated with teachers' behaviour. Some of the behavioural beliefs that correlated most strongly with intention and behaviour were: "enrich my pupils' knowledge", "help pupils work with one another", "help me communicate with colleagues in other schools", and "make preparation of lessons easier". The above correlations suggest that improving beliefs toward the use of ICT have a positive influence on teachers' intention and behaviour to use ICT. Finally, the importance of these beliefs to use ICT behaviour is in line with earlier studies (see Czerniak, et al., 1999, Preston et al., 2000).

These findings indicate that beliefs towards using ICT change should be a prime target for policy about the introduction and implementation of ICT in schools. More specifically, such policy efforts aiming at reinforcing the positive attitudes of teachers and change the attitudes of non-users should focus on these behavioural beliefs of ICT using behaviour. Understanding which behavioural beliefs have the strongest correlation with teachers' intention and behaviour to use ICT in their teaching can assist head teachers, district officers and school counsellors with designing training programmes for promoting ICT use. That is, by making ICT use training programmes specific to each school's needs, head teachers, district officers and school counsellors may be able to influence positively teachers' attitudes towards ICT use in teaching.

6.4.2.4 Teachers' normative beliefs

Another objective of this study was to investigate if through their normative beliefs, head teachers, district officers and school counsellors played a role in teachers' intention to use ICT in their teaching as well as in their actual use. The results presented in Section 6.3.5 showed that 12 persons/organisations related to schools in the Greek educational system influenced teachers' intention and behaviour. These included the head teacher, district officer, school counsellor, pupils, colleagues, the Ministry of Education and private computer companies. All expect private companies significantly positively correlated to intention or to behaviour.

One of the findings is that among the persons/organisations rated as most likely to approve the use of ICT in teaching were the head teacher, district officer and school counsellor. In addition, teachers reported that they were highly motivated to comply with their head teacher, district officer and school counsellor. Furthermore, the Pearson correlations also showed that head teacher, district officer and school counsellor significantly correlated with teachers' intentions. Therefore, these results show that head teachers, district officers and school counsellors had very significant effects on teachers' intention to use ICT.

One possible explanation for the fact that private computer companies were not correlated with teachers' intentions might be the nature of the educational system culture. Education for all levels (from the primary school to the university) in Greece has been free for all since the creation of democracy, therefore, it might be possible that this has created a reluctance from the public to trust the role of private companies in the education.

As presented in Chapter 2, many of the above persons/organisations (i.e. head teachers, administrators, counsellors, parents' association) were found to be related to the introduction and implementation of innovations and ICT use in schools by several authors (see Fullan, 1992; 2001; Cox et al., 1988).

These results have certain implications. In Greece, little or no attention has been paid to the involvement of all 12 persons/organisations in the introduction and implementation of ICT in schools. In the present study, it is shown that 11 of 12 persons/organisations had an influence on teachers' intention to use ICT in their teaching. In addition, parents' associations, colleagues, the Pedagogical Institute, local authorities and Greek primary

teachers' federation correlated with teachers' behaviour to use ICT. Therefore, all these persons/organisations should be informed about their role in ICT use in schools. These persons/organisations and mainly head teachers, district officers and school counsellors should have a good and strong relationship with teachers, and provide them with the support they need. An assumption is that this may contribute to teachers' development of a more positive attitude toward using ICT and stronger intention to use ICT, and contribute to a higher perceived behavioural control of the ability to use ICT in teaching.

These findings also suggest that head teachers, district officers and school counsellors had a role to play in influencing teachers to use ICT in their teaching. These should encourage active participation from the persons/organisations who play important roles in influencing teachers' intentions to use ICT in their teaching. Finally, these findings suggest that when all 12 persons/organisations show interest and support for the introduction, implementation and continuation of ICT use in schools this might enhance teachers' intention to use or to continue to use ICT in their teaching.

6.4.2.5 Teachers' control beliefs

The control beliefs identified in this study can be divided into those related to a) software, hardware and technical assistance, b) support from head teachers, district officers and school counsellors, parents, Ministry of Education and local authorities and c) financial support, training opportunities and curriculum and time issues. The importance of these beliefs to use ICT is in line with earlier studies. For example, the literature in Chapter 2 showed that for teachers to use ICT in their teaching there needs to be a sufficient number of computers and peripherals (e.g. Pelgrum, 2001; Preston et al., 2000), appropriate software for teaching purposes (e.g. Pelgrum and Plomp, 1991; 1993), training opportunities (e.g Rhodes and Cox, 1990), technical support as well as support from their head teachers and administrators (e.g. Akker et al., 1992; Fullan, 1992).

In this study, teachers scored highly on the majority of control factors reflecting the high degree of control they felt over the use of ICT in their teaching. In addition, all control factors were evaluated very highly. This suggests that having the appropriate skills, resources and opportunities to use ICT such as sufficient number of computers, appropriate computer room, support from head teachers, parents association, the Ministry of Education contributes towards positive attitudes and intention.

Although teachers in this study had generally high scores for the majority of control factors, they perceived that specific factors (e.g. facilities, support etc.) had not existed, which could have facilitated them in the use of ICT in their teaching. These factors were the following: adequate financial support, a small number of pupils in my class and support from the local authorities. This means that the availability of these control factors in schools might reduce the number of teachers who do not use ICT in their teaching and would increase existing ICT teachers' intention to continue to use ICT in their teaching.

Interestingly, many control factors appeared to be positively related to the intention to use ICT. This means that teachers who felt in full control of their ICT use, tend to have a stronger intention to use it. Some of the control beliefs that correlated with intention were the sufficient number of computers, an appropriate computer room, enough classroom time, and support provided at the school by the head teacher, district officer and school counsellor. In addition, the analysis of the relationship between control beliefs and behaviour to use ICT, has shown that the most significant factors relating to this behaviour were "enough time to develop lessons in which computers are used", "support will be provided at my school by the parents' association" and "local authorities (Municipality, Prefecture)" and "my pupils will want to use ICT". The control beliefs identified in the present study will help teachers to develop high perceived behavioural control and stronger intention to use ICT in their teaching, which in turn is hypothesised, that can influence teachers' actual use of ICT.

In general, the results of this study concerning these two models showed that the TRA and TPB variables explained a substantial proportion of variance of the teachers' intention to use ICT in their teaching as well as the actual use of ICT. Furthermore, head teachers, district officers and school counsellors had significant indirect effects on teachers' intention through normative beliefs. In addition, many of the control beliefs in this study emphasise the significant role of head teachers, district officers and school counsellors in the introduction and implementation of ICT in schools.

The next chapter presents head teachers', district officers' and school counsellors' attitudes towards computers and the effects of these attitudes on their support of the uptake of ICT in their schools.

CHAPTER 7
HEAD TEACHERS', DISTRICT OFFICERS' AND SCHOOL COUNSELLORS' ATTITUDES TOWARDS COMPUTERS

7.1 INTRODUCTION

This chapter presents the head teachers', district officers' and school counsellors' attitudes towards computers. Firstly, this chapter presents the descriptive statistics (mean and standard deviation) for each of the eight attitudes subscales and for each of the 62 attitude items that were used in this study. Then, it presents the one way ANOVA analysis which was used in order to find any differences between educators' attitudes and other variables including gender, age and years of working experience. In addition, this chapter presents the Pearson correlations between head teachers', district officers' and school counsellors' attitudes and their knowledge about computers as well as their computer training.

Finally, this chapter presents the results of the regression analysis of attitudes towards computers. This analysis was used in order to examine the effects of the attitudes towards computers on head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools.

7.2 HEAD TEACHERS', DISTRICT OFFICERS' AND SCHOOL COUNSELLORS' ATTITUDES TOWARDS COMPUTERS

As we have seen in Chapter 4 (see Section 4.6.6), 72 head teachers, 43 district officers and 47 school counsellors were asked to indicate their level of agreement with 62 items designed to measure their attitudes towards computers. These 62 items examined the dimensions of eight different subscales of attitudes towards computers[1]. A mean score and standard deviation was calculated for each attitude subscale and the total attitude scale. A high score on either attitude subscale or on overall scale indicates a positive

[1] The attitude questionnaire used to measure head teachers', district officers' and school counsellors' attitudes towards computers was the same as that used to measure teachers' attitudes towards computers. As we have seen in Chapter 4 (see Section 4.6.1.3), this questionnaire consisted of eight subscales. These were Computer Anxiety, Computer Confidence, Computer Usefulness, Computer Liking, E-mail, Perceived Educational Impact, Perceived Social Impact and Training needs. The overall questionnaire and each of the eight subscales was tested for reliability, using the Cronbach alpha coefficient (see Chapter 4, Section 4.6.5.2).

attitude, while a low score indicates a less positive attitude towards computers. The mean and standard deviation for the overall attitude score and each of the eight subscale scores for head teachers, district officers and school counsellors are shown in Table 7.1. As can be seen from Table 7.1 the mean scores of the overall attitude towards computers scale (1 to 5) for the head teachers, district officers and school counsellors were 4.11 (*SD*=0.89), 4.11 (*SD*=0.85) and 4.01 (*SD*=0.87) respectively. These overall mean scores indicate that head teachers, district officers and school counsellors held positive attitudes about computers in general.

Table 7.1 - Means (M) and standard deviations (SD) of head teachers', district officers' and school counsellors' attitudes towards computers.

		Head Teachers		District officers		School counsellors	
Subscales	Number of items	*M*	*SD*	*M*	*SD*	*M*	*SD*
Computer Anxiety*	12	4.02	0.89	4.05	0.91	3.95	0.94
Computer Confidence	5	4.08	0.83	4.03	0.89	4.03	0.92
Computer Usefulness	7	4.35	0.69	4.37	0.73	4.23	0.79
Computer Liking	12	4.12	0.87	4.16	0.80	4.02	0.82
Use of E-mail	4	4.03	0.70	3.73	0.87	3.71	0.70
Educational Impact	10	4.24	0.69	4.10	0.77	4.09	0.71
Social Impact	7	4.12	0.86	4.05	0.98	3.92	1.00
Training Need	5	4.31	0.83	4.22	0.80	4.09	0.95
Overall scale	**62**	**4.11**	**0.89**	**4.11**	**0.85**	**4.01**	**0.87**

*Negative statements in this scale were reverse scored to be consistent in measurement. Therefore, the highest score in anxiety subscale indicates a low level of computer anxiety.

Table 7.1 also shows that head teachers had subscales scores ranging from 4.02 to 4.35, district officers ranging from 3.73 to 4.37 and school counsellors ranging from 3.71 to 4.23. Head teachers and district officers scored higher on the majority of subscales and the overall scale than school counsellors indicating that these educators had stronger positive attitudes towards computers. More specifically, Table 7.1 shows that all groups had mean scores greater than 4.23 for the Computer Usefulness subscale. On the other hand, district officers had a mean score of less than 4.00 for the E-mail subscale. In addition, school counsellors had mean scores of less than 4.00 for the Computer Anxiety, E-mail and Social Impact subscales.

Table 7.2 shows the mean and standard deviation for each of 62 attitude items for head teachers, district officers and school counsellors separately.

Table 7.2 - Means (M) and standard deviations (SD) of attitudes towards computers items.

Item number	Subscales	Head teachers		District officers		School counsellors	
		M	*SD*	*M*	*SD*	*M*	*SD*
	Computer Anxiety						
1	If I was given the opportunity, I would like to learn about and use computers.	4.56	0.53	4.65	0.48	4.55	0.50
2	I think that computers are very easy to use.	3.68	0.73	3.72	0.85	3.66	1.01
3	I sometimes feel intimidated when I have to use a computer. *	3.83	1.03	4.14	1.04	3.85	1.10
4	I feel comfortable working with a computer.	3.90	0.87	3.86	0.86	3.68	0.86
5	Computers make me feel uneasy and confused. *	4.03	0.86	4.14	0.80	4.04	0.83
6	Computers are difficult to use. *	3.96	0.86	3.81	0.88	4.00	0.86
7	Computers do not scare me at all.	3.92	1.07	3.91	1.11	3.83	1.24
8	Working with computer makes me nervous. *	3.90	1.00	4.26	0.82	3.91	1.06
9	I hesitate to use a computer for fear of making mistakes I cannot correct. *	3.99	0.94	4.02	0.86	3.96	0.91
10	The challenge of learning about computers is exciting.	4.26	0.84	4.09	0.81	3.98	0.90
11	I get a sinking feeling when I think of trying to use a computer. *	4.36	0.70	4.37	0.79	4.43	0.62
12	I feel at ease when I am around computers.	3.85	0.78	3.58	1.01	3.47	0.75
	Computer Confidence						
13	I am sure I could do work with computers.	4.22	0.68	4.14	0.68	4.13	0.71
14	I am sure I could learn a computer language.	3.89	0.93	3.84	0.90	3.87	0.88
15	I will probably never learn to use a computer. *	4.44	0.60	4.51	0.67	4.57	0.58
16	I have a lot of self-confidence when it comes to working with computers.	3.60	0.87	3.60	0.98	3.49	1.08
17	I don't think I would do advanced computers work. *	4.22	0.75	4.05	0.95	4.06	0.96
	Computer Usefulness						
18	I would work harder if I could use computers more often.	3.94	0.80	3.84	1.04	3.57	1.02
19	I know that computers give me opportunities to learn new things.	4.50	0.58	4.42	0.54	4.49	0.51
20	I will use computers many ways in my life.	4.08	0.78	4.26	0.69	3.98	0.68
21	I can't think of any way that I will use computers in my career. *	4.39	0.68	4.44	0.73	4.26	0.87
22	Learning about computers is a waste of time. *	4.57	0.53	4.70	0.60	4.64	0.70
23	Learning about computers is interesting.	4.42	0.58	4.51	0.55	4.30	0.51
24	I believe that it is very important for me to learn how to use a computer.	4.57	0.58	4.40	0.54	4.36	0.64
	Computer Liking						
25	I am tired of using a computer. *	4.56	0.75	4.49	0.70	4.49	0.59
26	Computers are not exciting. *	4.43	0.82	4.37	0.72	4.34	0.70
27	I will do as little work with computers as possible. *	4.22	0.70	4.30	0.71	4.13	0.80
28	I concentrate on a computer when I use one.	3.83	0.87	4.07	0.67	3.83	0.94
29	I think working with computers would be enjoyable and stimulating.	4.47	0.56	4.28	0.67	4.21	0.69
30	The challenge of solving problems with computers does not appeal to me. *	3.83	1.03	4.12	0.88	4.00	0.75

Table 7.2 (continued).

Item number	Subscales	Head teachers		District officers		School counsellors	
		M	*SD*	*M*	*SD*	*M*	*SD*
31	When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.	3.69	1.04	3.95	0.92	3.87	0.82
32	I enjoy doing things on a computer.	4.18	0.66	4.19	0.63	4.02	0.68
33	I would like to learn more about computers.	4.49	0.58	4.42	0.54	4.30	0.51
34	I do not enjoy talking with others about computers. *	3.93	0.94	4.09	0.89	3.85	1.00
35	I would like working with computers.	4.29	0.68	4.19	0.79	3.91	0.72
36	I would like to spend more time using a computer.	3.53	0.90	3.51	1.01	3.23	0.81
	Use of E-mail						
37	The use of e-mail increases motivation for the course.	3.97	0.73	3.67	0.94	3.66	0.73
38	The use of e-mail makes the course more interesting.	4.03	0.73	3.74	0.82	3.72	0.71
39	The use of e-mail makes the student feel more involved.	4.08	0.69	3.74	0.88	3.70	0.69
40	The use of e-mail helps the student to learn more.	4.03	0.67	3.74	0.85	3.77	0.70
	Perceived Educational Impact						
41	Computers could enhance remedial instruction.	4.32	0.67	4.21	0.77	4.38	0.71
42	Using computers in class leads to more productivity among students.	4.29	0.70	4.05	0.75	4.17	0.60
43	Students are more attentive when computers are used in class.	3.86	0.89	4.00	0.82	3.81	0.90
44	Computers in school enhance students' creativity.	4.13	0.79	3.93	0.96	3.98	0.77
45	Computers help to teach more effectively.	4.28	0.68	4.09	0.72	4.15	0.66
46	The achievement of students can be increased when using computers for teaching.	4.21	0.60	4.00	0.76	3.94	0.76
47	Computers are valuable tools for improving the quality of a child's education.	4.43	0.62	4.28	0.70	4.15	0.62
48	Computers can be used successfully with courses which demand creative activities.	4.33	0.61	4.28	0.67	4.21	0.55
49	Computers would help students work with one another.	4.17	0.61	3.98	0.77	3.91	0.72
50	Computers can be a useful instructional aid in almost all subjects' areas.	4.39	0.52	4.23	0.72	4.19	0.65
	Perceived Social Impact						
51	Computers harm relations between people. *	4.00	0.79	3.91	0.92	3.45	0.93
52	Working with computers in class distorts the social climate. *	4.15	0.69	3.95	1.09	3.96	0.95
53	Computers have become too dominant over us. *	4.46	0.56	4.42	0.93	4.60	0.54
54	Using a computer prevents me from being creative. *	4.33	1.03	4.33	0.75	4.09	1.00
55	Social contacts are negatively affected by the use of computers. *	3.89	0.97	3.91	0.87	3.62	1.13
56	We will lose control over computers one day. *	3.75	0.87	3.70	1.12	3.66	1.09
57	Computers reduce humans to number. *	4.24	0.80	4.12	0.98	4.09	0.80

Table 7.2 (continued).

Item number	Subscales	Head teachers		District officers		School counsellors	
		M	*SD*	*M*	*SD*	*M*	*SD*
	Training needs						
58	In-service training courses about computers should be made compulsory.	4.29	0.85	3.91	1.21	4.02	1.11
59	I would like to take part in a computer course to learn more about computers.	4.64	0.51	4.40	0.58	4.47	0.55
60	I try to keep informed about technological changes.	3.92	0.88	4.16	0.65	3.89	0.91
61	I would like to learn more about computer as teaching aids.	4.50	0.61	4.35	0.57	4.21	0.59
62	I don't mind learning about computers.	4.19	1.02	4.28	0.73	3.83	1.26

*Notes: * Items for which the scoring was reversed.*

As can be seen from Table 7.2, head teachers had attitudes scores ranging from 3.53 (see item 36) to 4.64 (see item 59). District officers had attitudes scores ranging from 3.51 (see item 36) to 4.70 (see item 22) and school counsellors from 3.23 (see item 36) to 4.64 (see item 22). Head teachers and district officers had means of 4.00 or higher in the majority of attitudes items (41 of 62 items) indicating that on average they had positive to strongly positive attitudes towards computers for various statements. However, school counsellors had high means (higher than 4.00) in half of the attitudes items (31 of 62 items) indicating that they had a less positive attitude in various attitudes statements than head teachers and district officers.

Inspection of the means and the standard deviations on the e-mail subscale in Table 7.2 shows that both district officers and school counsellors scored all items relative low (less than 4.00). For instance, the mean score for the item 37 "The use of E-mail increases motivation for the course" was 3.67 for district officers and 3.66 for school counsellors. These relatively low mean scores indicate that these educators had less positive attitudes towards the role of e-mail in teaching than head teachers.

One way ANOVA analysis was used in order to determine the existence of statistically significant differences between head teachers' district officers' and school counsellors' attitude total score[1] towards computers and their demographic or other characteristics such as gender, years of working experience, and geographical area of their schools. Post

[1] Each item was scored from 1 to 5 and summed to create a total attitude score for each teacher (minimum attitude score=62, maximum attitude score=310).

hoc analysis using a Scheffe test was performed on those results found to be significant at $p<0.05$ level by the one way ANOVA analysis. The following sections present the ANOVA results for each of the three educators (head teachers, district officers and school counsellors).

7.2.1 Head teachers', district officers' and school counsellors' gender and attitudes towards computers

Data were analysed to examine the difference between attitudes towards computers in male and female head teachers, district officers and school counsellors (see Chapter 5, Section 5.2.1). The following table (see Table 7.3) shows the descriptive statistics of the one way ANOVA analysis such as the mean attitude score, standard deviation, maximum and minimum attitude score for each category of the educators. Table 7.3 shows that female head teachers' and district officers' had slightly higher attitude mean scores than males. In contrast, male school counsellors' had slightly higher attitude mean score than female school counsellors. However, these differences were not statistically significant.

Table 7.3 - Descriptive statistics of gender and attitudes towards computers.

	Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	Male	58	257.21	28.192	3.702	249.79	264.62	195	306
	Female	14	258.29	27.184	7.265	242.59	273.98	210	305
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	Male	41	253.88	26.981	4.214	245.36	262.39	206	310
	Female	2	269.50	21.920	15.500	72.55	466.45	254	285
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	Male	41	249.00	21.324	3.330	242.27	255.73	210	294
	Female	6	248.17	36.130	14.750	210.25	286.08	212	304
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Table 7.4 shows the results of the One Way Analysis of Variance (ANOVA) of head teachers, district officers and school counsellors' gender and their attitudes towards computers. More specifically, this table shows sums of squares, degrees of freedom (df), observed F ratio, and p value for the analysis.

Table 7.4 - One way analysis of variance (ANOVA) of gender and attitudes towards computers.

		Sum of Squares	df	Mean Square	F	*p*
Head teachers	Between Groups	13.126	1	13.126	.017	.897*
	Within Groups	54908.374	70	784.405		
	Total	54921.500	71			
District officers	Between Groups	465.389	1	465.389	.645	.427*
	Within Groups	29598.890	41	721.924		
	Total	30064.279	42			
School counsellors	Between Groups	3.635	1	3.635	.007	.936*
	Within Groups	24714.833	45	549.219		
	Total	24718.468	46			

* Not significant (p>.05)

As can be seen from Table 7.4, the F values in each category of educators were not statistically significant as indicated by the listed *p* values[1]. All the *p* values were higher than 0.05 level (see *p* value column). Therefore, the results of the one way ANOVA showed that there were no differences between male and female head teachers, district officers and school counsellors with respect to their attitudes towards computers.

7.2.2 Head teachers', district officers' and school counsellors' age and attitudes towards computers

One way ANOVA was also used in order to determine the existence of statistically significant differences between head teachers' district officers' and school counsellors' attitude score towards computers and their age (see Chapter 5, Section 5.2.2).

Table 7.5 shows the descriptive statistics of head teachers' district officers' and school counsellors' attitudes by age group. As we can see from Table 7.5 the mean score of the age groups varied from 253.56 to 264.85 for head teachers, 250.50 to 256.62 for district officers and 243.50 to 251.95 for school counsellors.

[1] Any value in P value column in each table of One Way Analysis of Variance that is less than 0.05 is significant. All other values in that column that are greater than 0.05 are not significant.

Table 7.5 - Descriptive statistics of age groups and attitudes towards computers.

	Age	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	31-35	5	261.00	26.768	11.971	227.76	294.24	221	283
	36-40	10	259.30	38.896	12.300	231.48	287.12	210	305
	41-45	13	264.85	25.016	6.938	249.73	279.96	233	306
	46-50	16	253.56	23.980	5.995	240.78	266.34	219	295
	51-55	18	254.00	27.538	6.491	240.31	267.69	195	287
	Over 55	10	256.40	30.067	9.508	234.89	277.91	218	303
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	41-45	10	252.90	16.196	5.122	241.31	264.49	233	285
	46-50	13	256.62	27.813	7.714	239.81	273.42	210	299
	51-55	16	255.06	34.590	8.647	236.63	273.49	206	310
	Over 55	4	250.50	10.344	5.172	234.04	266.96	246	263
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	41-45	4	248.75	22.897	11.448	212.32	285.18	221	277
	46-50	8	250.38	31.025	10.969	224.44	276.31	212	304
	51-55	21	251.95	20.375	4.446	242.68	261.23	216	286
	Over 55	14	243.50	23.993	6.412	229.65	257.35	210	294
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Table 7.6 - One way analysis of variance (ANOVA) of age groups and attitudes towards computers.

		Sum of Squares	df	Mean Square	*F*	*p*
Head teachers	Between Groups	1275.370	5	255.074	.314	.903*
	Within Groups	53646.130	66	812.820		
	Total	54921.500	71			
District officers	Between Groups	152.365	3	50.788	.066	.977*
	Within Groups	29911.914	39	766.972		
	Total	30064.279	42			
School counsellors	Between Groups	621.391	3	207.130	.370	.775*
	Within Groups	24097.077	43	560.397		
	Total	24718.468	46			

* Not significant ($p>.05$)

Table 7.6 shows the results of one way ANOVA to investigate the differences between head teachers', district officers' and school counsellors' attitudes towards computers related to their age. As can be seen from Table 7.6 there were no statistically significant differences between the means of head teachers', district officers' and school

counsellors' attitude scores among the age groups, because the *p* values were higher than 0.05 level (see *p* value column).

7.2.3 Head teachers', district officers' and school counsellors' qualifications and attitudes towards computers

This study also investigated the differences between head teachers', district officers', and school counsellors' attitudes towards computers related to their qualification(s) (see Chapter 5, Section 5.2.3). Table 7.7 shows a summary of descriptive statistics describing the mean attitude scores and standard deviations for each group of educators and each group of qualifications.

As we can see from this table, the head teachers and school counsellors in Category "C" had higher mean scores than their colleagues in the other two categories. In addition, the district officers in Category "B" qualifications had a higher mean score compared with the score of the district officers in Category "A".

Table 7.7 - Descriptive statistics of qualifications and attitudes towards computers.

	Qualification(s)	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	Category A*	13	258.23	24.947	6.919	243.16	273.31	218	303
	Category B**	58	257.17	28.846	3.788	249.59	264.76	195	306
	Category C***	1	261.00	.	.	.	.		
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	Category A*	12	249.92	27.204	7.853	232.63	267.20	206	285
	Category B**	31	256.42	26.806	4.815	246.59	266.25	210	310
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	Category B**	39	248.38	21.367	3.421	241.46	255.31	210	286
	Category C***	8	251.38	32.315	11.425	224.36	278.39	212	304
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Notes: *=Category "A", were those who possessed only one degree. **=Category "B", were those who possessed more than one degree or in-service training. Category "C", were those who possessed some degrees from the previous categories as well as a Masters degree and a PhD in various subjects (see Chapter 5, Section 5.2.3).

Table 7.8 shows the results of one way ANOVA regarding the differences between head teachers', district officers' and school counsellors' attitudes towards computers related to their qualifications.

Table 7.8 - One way analysis of variance (ANOVA) of qualifications and attitudes towards computers.

		Sum of Squares	df	Mean Square	*F*	*p*
Head teachers	Between Groups	24.916	2	12.458	.016	.984*
	Within Groups	54896.584	69	795.603		
	Total	54921.500	71			
District officers	Between Groups	365.814	1	365.814	.505	.481*
	Within Groups	29698.465	41	724.353		
	Total	30064.279	42			
School counsellors	Between Groups	59.362	1	59.362	.108	.744*
	Within Groups	24659.106	45	547.980		
	Total	24718.468	46			

* Not significant (p>.05)

As can be seen from Table 7.8 the F value was .016 and the p value was .984 for head teachers. The F value was .505 for district officers and .108 for school counsellors while the p value was .481 for district officers and .744 for school counsellors respectively. These results indicate that there were no statistically significant differences in attitudes towards computers relating to qualifications (p>0.05).

7.2.4 Head teachers', district officers' and school counsellors' work experience and attitudes towards computers

A one way analysis of variance (ANOVA) was also calculated in order to determine the differences between head teachers', district officers' and school counsellors' attitudes and their years of work experience in the Greek educational system (see Chapter 5, Section 5.2.4). Table 7.9 presents the descriptive statistics and Table 7.10 presents the results of the one way analysis of variance.

Results of the one way ANOVA (see Table 7.10) showed that the significance value was greater than 0.05. Therefore, there were no significant differences among head teachers', district officers' and school counsellors' attitudes related to their years of working experience.

Table 7.9 - Descriptive statistics of years of working experience and attitudes towards computers.

	Years	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	6-10	2	277.50	3.536	2.500	245.73	309.27	275	280
	11-15	9	264.00	35.465	11.822	236.74	291.26	211	305
	16-20	11	258.64	33.116	9.985	236.39	280.88	217	306
	21-25	17	256.47	22.842	5.540	244.73	268.21	219	287
	Over 25	33	254.48	27.398	4.769	244.77	264.20	195	303
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	11-15	2	256.00	8.485	6.000	179.76	332.24	250	262
	16-20	2	253.50	14.849	10.500	120.08	386.92	243	264
	21-25	16	255.00	27.301	6.825	240.45	269.55	217	310
	Over 25	23	254.30	29.062	6.060	241.74	266.87	206	310
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	11-15	3	257.33	25.794	14.892	193.26	321.41	236	286
	16-20	4	236.50	23.979	11.990	198.34	274.66	212	263
	21-25	16	255.56	24.454	6.113	242.53	268.59	217	304
	Over 25	24	245.46	21.740	4.438	236.28	254.64	210	294
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Table 7.10 - One way analysis of variance (ANOVA) of years of working experience and attitudes towards computers.

		Sum of Squares	df	Mean Square	*F*	*p.*
Head teachers	Between Groups	1511.977	4	377.994	.474	.755*
	Within Groups	53409.523	67	797.157		
	Total	54921.500	71			
District officers	Between Groups	10.910	3	3.637	.005	1.000*
	Within Groups	30053.370	39	770.599		
	Total	30064.279	42			
School counsellors	Between Groups	1822.906	3	607.635	1.141	.343*
	Within Groups	22895.563	43	532.455		
	Total	24718.468	46			

* Not significant (p>.05)

7.2.5 Years of service as a head teacher, a district officer and a school counsellor and attitudes towards computers

This study also used the one way ANOVA analysis in order to determine the differences in educators' attitudes towards computers related to their years of service as a head teacher in the current school, and district officer and school counsellor in the current

district (see Chapter 5, Section 5.2.5). Table 7.11 shows the descriptive statistics of each year groups for each group of educators.

Table 7.11 - Descriptive statistics of years of service as a head teacher, a district officer and a school counsellor and attitudes towards computers.

	Years	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	1-5	50	256.74	28.500	4.031	248.64	264.84	195	305
	6-10	19	256.84	27.783	6.374	243.45	270.23	219	306
	11-15	3	272.33	16.258	9.387	231.95	312.72	254	285
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	1-5	34	257.35	27.390	4.697	247.80	266.91	206	310
	6-10	8	243.50	24.030	8.496	223.41	263.59	210	285
	11-15	1	250.00						
	Total	43	254.60	26.75	4.08	246.37	262.84	206	310
School counsellors	1-5	45	247.84	22.957	3.422	240.95	254.74	210	304
	6-10	1	259.00						
	15-20	1	286.00						
	Total	47	248.89	23.18	3.38	242.09	255.70	210	304

Table 7.12 - One way analysis of variance (ANOVA) of years of service as a head teacher, a district officer and a school counsellor and attitudes towards computers.

		Sum of Squares	df	Mean Square	*F*	*p*
Head teachers	Between Groups	696.687	2	348.344	.443	.644*
	Within Groups	54224.813	69	785.867		
	Total	54921.500	71			
District officers	Between Groups	1264.514	2	632.257	.878	.423*
	Within Groups	28799.765	40	719.994		
	Total	30064.279	42			
School counsellors	Between Groups	1528.557	2	764.278	1.450	.246*
	Within Groups	23189.911	44	527.043		
	Total	24718.468	46			

* Not significant (p>.05)

According to the one way ANOVA results in Table 7.12, all the p values were higher than 0.05 level (see p value column). Therefore, no statistically significant differences were found between the attitudes of educators and their years of service as a head

teacher in the current school and district officer and school counsellor in the current district.

7.2.6 School's geographical area and head teachers' attitudes towards computers

A one way ANOVA was also conducted to assess the differences between head teachers' attitudes by geographical area of their schools (urban, semi-urban, and rural) (see Chapter 5, Section 5.3.1). Table 7.13 shows that the mean score and standard deviation of the attitude toward computers of head teachers in urban areas were 258.98 and 27.515, for head teachers in semi-urban areas were 246.80 and 22.565 and for head teachers in rural areas 256.52 and 30.103 respectively.

Table 7.13 - Descriptive statistics of school's geographical area and attitudes towards computers.

Schools' area	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Urban	46	258.98	27.515	4.057	250.81	267.15	195	304
Semi-urban	5	246.80	22.565	10.092	218.78	274.82	221	283
Rural	21	256.52	30.103	6.569	242.82	270.23	210	306
Total	72	257.42	27.813	3.278	250.88	263.95	195	306

Table 7.14 - One way analysis of variance (ANOVA) of school's geographical area and attitudes towards computers.

	Sum of Squares	df	Mean Square	*F*	*p*
Between Groups	692.484	2	346.242	.441	.645*
Within Groups	54229.016	69	785.928		
Total	54921.500	71			

* Not significant (p>.05)

Table 7.14 shows that there was no statistically significant difference between the computer attitudes of head teachers related to their schools' geographical area. The F value was 0.441 and p value greater than 0.05 (p=0.645).

7.2.7 School's ICT type of use and head teachers' attitudes towards computers

Data were also analysed in order to examine if there was any difference between head teachers' attitudes towards computers related to the type of ICT use in their schools (see Chapter 5, Section 5.7.11). Table 7.15 shows that head teachers in schools where ICT was used as a tool had higher mean score than the head teachers of schools that employed the other two types of ICT use (see Chapter 5, Section 5.7.11). More specifically, the head teachers in "ICT as a tool" group had a mean attitude of 265.80

(*SD*=25.977), head teachers in the "ICT as a subject" group had a mean of 243.28 (*SD*=29.469) whereas head teachers in the third group had a mean attitude of 251.64 (*SD*=23.147).

Table 7.15 - Descriptive statistics of schools ICT type of use and attitudes towards computers.

ICT type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
ICT as a tool	40	265.80	25.977	4.107	257.49	274.11	218	306
ICT as a subject	18	243.28	29.469	6.946	228.62	257.93	195	303
Both	14	251.64	23.147	6.186	238.28	265.01	217	287
Total	72	257.42	27.813	3.278	250.88	263.95	195	306

Table 7.16 - One way analysis of variance (ANOVA) of schools ICT type of use and attitudes towards computers.

	Sum of Squares	df	Mean Square	*F*	*P*
Between Groups	6876.275	2	3438.137	4.938	.010*
Within Groups	48045.225	69	696.308		
Total	54921.500	71			

* Significant (p<.05)

The results of a one way ANOVA in Table 7.16 showed a significant statistical difference between computer attitudes of the head teachers in relation to type of ICT use in their schools. The F value was 4.938 and the p value .010 (p<0.05). Because the result was significant, a Post hoc analysis of the Scheffe type was conducted to evaluate pairwise differences among the groups (see Table 7.17).

Table 7.17 - Scheffe Post Hoc multiple comparisons.

(I) COMPUTER	(J) COMPUTER	Mean Difference (I-J)	Std. Error	*P*	95% Confidence Interval	
					Lower Bound	Upper Bound
ICT as a tool	ICT as a subject	22.52*	7.489	.014	3.78	41.26
	Both	14.16	8.194	.232	-6.34	34.66
ICT as a subject	ICT as a tool	-22.52*	7.489	.014	-41.26	-3.78
	Both	-8.37	9.403	.675	-31.89	15.16
Both	ICT as a tool	-14.16	8.194	.232	-34.66	6.34
	ICT as a subject	8.37	9.403	.675	-15.16	31.89

* The mean difference is significant at the .05 level.

The Scheffe Post hoc test in Table 7.17 shows that the attitudes of head teachers who worked in schools where ICT was used as a tool differ significantly from the head

teachers who worked in schools where ICT was used as a subject. All other comparisons were non significant. This finding is discussed in Section 7.4.1.

7.2.8 Use of ICT for administrative purposes and head teachers', district officers' and school counsellors' attitudes towards computers

This study also investigated the differences in head teachers', district officers' and school counsellors' attitudes related to their use of ICT for administrative purposes. Table 7.18 shows the descriptive statistics of this analysis. As can be seen from this table, the educators who used ICT for administrative purposes had higher mean attitude scores than those that did not use ICT.

Table 7.18 - Descriptive statistics of use of ICT for administrative purposes and attitudes towards computers.

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	Using computers	51	259.96	27.402	3.837	252.25	267.67	195	306
	No using computers	21	251.24	28.501	6.219	238.26	264.21	218	303
	Total	72	257.42	27.813	3.278	250.88	263.95	195	306
District officers	Using computers	22	260.41	23.264	4.960	250.09	270.72	233	310
	No using computers	21	248.52	29.310	6.396	235.18	261.87	206	310
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	Using computers	19	257.42	24.040	5.515	245.83	269.01	212	304
	No using computers	28	243.11	21.079	3.984	234.93	251.28	210	294
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Table 7.19 - One way analysis of variance (ANOVA) of use of ICT for administrative purposes and attitudes towards computers.

		Sum of Squares	Df	Mean Square	*F*	*p*
Head teachers	Between Groups	1131.769	1	1131.769	1.473	.229*
	Within Groups	53789.731	70	768.425		
	Total	54921.500	71			
District officers	Between Groups	1517.723	1	1517.723	2.180	.147*
	Within Groups	28546.556	41	696.257		
	Total	30064.279	42			
School counsellors	Between Groups	2319.158	1	2319.158	4.659	.036**
	Within Groups	22399.310	45	497.762		
	Total	24718.468	46			

* Not significant ($p>.05$) ** Significant ($p<.05$)

The one way ANOVA results in Table 7.19 shows that the F value was 1.473 (p=.229) for head teachers, and 2.180 (p=.147) for district officers which means there were no statistically significant differences between their attitudes and their use of ICT for administrative purposes.

There was, however, a statistically significant difference in the school counsellors' attitudes' mean scores related to their use of ICT for administrative purposes (F=4.659 and p=.036). This result shows that the school counsellors who used ICT for administrative purposes had significantly more positive attitudes to using ICT in school (M=257.11) than those counsellors who did not use ICT (M=243.89). This is discussed in Section 7.4.1.

7.2.9 Head teachers', district officers' and school counsellors' access to a computer for personal use outside of the work place and attitudes towards computers

One of the objectives of the one way ANOVA analysis was to examine if there was any difference between head teachers', district officers' and school counsellors' attitudes mean scores related to their access to a computer for personal use outside of the work place (see Chapter 5, Section 5.8.1). Table 7.20, shows that the head teachers, district officers and school counsellors who reported access to a computer for personal use outside of their work place had higher mean attitude scores than those educators who had no access. Table 7.21 shows the results of the one way analysis of variance.

Table 7.20 - Descriptive statistics of access to a computer for personal use outside of the work place and attitudes towards computers.

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Head teachers	Access to a computer	39	263.67	28.409	4.549	254.46	272.88	195	306
	No access to a computer	33	250.03	25.574	4.452	240.96	259.10	210	303
	Total	72	257.42	27.81	3.278	250.88	263.95	195	306
District officers	Access to a computer	19	258.00	23.262	5.337	246.79	269.21	233	310
	No access to a computer	24	251.92	29.438	6.009	239.49	264.35	206	310
	Total	43	254.60	26.755	4.080	246.37	262.84	206	310
School counsellors	Access to a computer	19	253.95	29.619	6.795	239.67	268.22	212	304
	No access to a computer	28	245.46	17.334	3.276	238.74	252.19	210	280
	Total	47	248.89	23.181	3.381	242.09	255.70	210	304

Table 7.21 - One way analysis of variance (ANOVA) of access to a computer for personal use outside of the work place and attitudes towards computers.

		Sum of Squares	df	Mean Square	*F*	*p*
Head teachers	Between Groups	3323.864	1	3323.864	4.509	.037**
	Within Groups	51597.636	70	737.109		
	Total	54921.500	71			
District officers	Between Groups	392.446	1	392.446	.542	.466*
	Within Groups	29671.833	41	723.703		
	Total	30064.279	42			
School counsellors	Between Groups	814.556	1	814.556	1.533	.222*
	Within Groups	23903.912	45	531.198		
	Total	24718.468	46			

* Not significant ($p>.05$) ** Significant ($p<.05$)

The results in Table 7.21 show that there was a statistically significant difference in head teachers' attitudes towards computers between those who had access to a computer and those had no access to a computer outside of the work place. This means that head teachers with access to a computer for personal use outside of the work place had significantly more positive attitudes than head teachers without access to a computer outside of the work place. However, the results of the ANOVA showed no significant differences between district officers' and school counsellors' attitudes' score and their access or not to a computer for personal use outside of the work place.

The attitudes' data were further analysed to find if there was any relationships among head teachers', district officers' and school counsellors attitudes towards computers and their knowledge about computers as well as the ICT training perceived. These relationships were examined using Pearson correlations (two-tailed). The following two sections present the results of the Pearson correlations.

7.2.10 Relationships between head teachers', district officers' and school counsellors' knowledge about computers and their attitudes towards computers

Head teachers' district officers' and school counsellors' total scores on the 10 statements measuring their basic knowledge of computers as well as on the 10 statements measuring their ICT abilities (see Chapter 5, Section 5.10) were correlated with their

total attitudes' scores towards computers and with each of the eight attitudes subscales[1]. These correlations between the scores of the attitudes and knowledge about computers are shown in the following three tables (see Table 7.22, 7.23 and 7.24).

Table 7.22 shows the correlation between head teachers' attitudes and their knowledge about computers as well their ICT abilities. As we can see from this table, there was a significant relationship between the three variables. The attitude score was correlated positively with the knowledge score (Pearson, *r*, value was +.399, with *p*-value <0.01) and with ICT abilities' score (Pearson, *r*, value was +.319, with *p*-value <0.01). In addition, the knowledge concerning computers score and ICT abilities score were correlated positively with five of the eight attitudes subscales. There was no significant correlation for e-mail, educational and social impact subscales.

Table 7.23 shows the results of the correlation for the district officers. As is shown in this table, no significant correlation existed between district officers' attitudes and their knowledge score. The *r* was .245 and the *p* value >0.01. Similarly, as we can see in Table 7.23 there was no relationship between district officers' attitudes score and ICT abilities score. The *r* value was +.276 (*p*=.074). However, Table 7.23 shows that there was a significant positive relationship between knowledge concerning computers' score and anxiety (*r*=+.334, *p*=.028), liking (*r*=+.332, *p*=.030), and training need subscales (*r*=+.381, *p*=.012). In addition, Table 7.23 shows that there was a significant positive relationship between ICT abilities score and anxiety (*r*=+.385, *p*=.011), confidence (*r*=+.395, *p*=.009), liking (*r*=+.301, *p*=.050), and training need subscales (*r*=+.340, *p*=.026). These correlations are discussed in Section 7.4.1.

[1] For the calculation of the score in each category of knowledge/skills see Chapter 4 (see Section 4.7.3.2).

Table 7.22 - Pearson correlation for head teachers' attitudes towards computers and knowledge about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Need
Knowledge concerning computers	.399** (.001)	.462** (.000)	.498** (.000)	.322** (.006)	.463** (.000)	.076 (.524)	.197 (.098)	.176 (.139)	.308** (.009)
ICT' abilities	.319** (.007)	.459** (.000)	.439** (.000)	.261* (.028)	.399** (.001)	-.049 (.688)	.060 (.618)	.065 (.593)	.276** (.020)

*. Correlation is significant at the 0 05 level (2 tailed). ** Correlation is significant at the 0 01 level (2-tailed).

Table 7.23 - Pearson correlation for district officers' attitudes towards computers and knowledge about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Need
Knowledge concerning computers	.245 (.114)	.334* (.028)	.254 (.100)	.215 (.167)	.332** (.030)	-.102 (.516)	.142 (.365)	-.128 (.414)	.381* (.012)
ICT' abilities	.276 (.074)	.385* (.011)	.395** (.009)	.225 (.147)	.301* (.050)	-.068 (.666)	.147 (.347)	-.085 (.587)	.340* (.026)

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 7.24 - Pearson correlation for school counsellors' attitudes towards computers and knowledge about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Need
Knowledge concerning computers	.188 (.206)	.091 (.544)	-.011 (.943)	.089 (.551)	.190 (.202)	.313* (.032)	.222 (.134)	.114 (.447)	.147 (.324)
ICT' abilities	.215 (.147)	.170 (.253)	.006 (.967)	.060 (.688)	.180 (.226)	.369* (.011)	.253 (.086)	-.007 (.963)	.254 (.085)

* Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 7.24 shows the correlation results between school counsellors' attitudes towards computers and their knowledge concerning computers score and ICT abilities score. The results show that there was no relationship among these three variables. However, Table 7.24 shows that there was a significant correlation between school counsellors' knowledge concerning computers score, ICT abilities score and the e-mail subscale.

This study, moreover, analysed the relationships between head teachers', district officers' and school counsellors' attitudes towards computers and their training about computers. These correlations are presented in the following section.

7.2.11 Relationships between head teachers', district officers' and school counsellors' training received and their attitudes towards computers

Head teachers', district officers' and school counsellors' total training score of computers (see Chapter 5, Section 5.9) was correlated with their total attitudes scores towards computers as well with the mean score of the eight attitudes' subscales. The correlations between these variables for each group of the educators are shown in the following three tables (see Table 7.25, 7.26 and 7.27).

The correlation between the head teachers' attitude and training scores in Table 7.25 showed a positive significant correlation (r=+.235, p=0.47). However, Table 7.25 shows that only anxiety (r=+.321, p=.006) and liking (r=+.277, p=.019) subscales were correlated with training score.

Table 7.26 shows the correlation between district officers' attitudes towards computers and their training score. As can be seen from this table, there was no significant relationship between district officers' attitude score and training computer score. Similarly, Pearson correlations in Table 7.26 between district officers' attitudes subscales score and training score showed no significant correlations. However, Table 7.27 shows that there was a significant positive relationship between school counsellors' attitude score and their training score (r=+.448, p=.002). Additionally, there was a significant positive relationship between the training score and anxiety (r=+.303, p=.038), confidence (r=+.368, p=.011), usefulness (r=+.400, p=.005), liking (r=+.346, p=.017) and educational impact subscales (r=+.453, p=.001). These correlations are discussed in Section 7.4.1.

Table 7.25 - Pearson correlation for head teachers' attitudes towards computers and training about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Training score	.235* (.047)	.321** (.006)	.308 (.008)	.157 (.187)	.277* (.019)	-.063 (.598)	.102 (.395)	.103 (.389)	.222 (.061)

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 7.26 - Pearson correlation for district officers' attitudes towards computers and training about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Training score	.196 (.000)	.159 (.308)	.160 (.304)	.191 (.221)	.265 (.086)	.125 (.425)	.285 (.064)	-.226 (.146)	.282 (.067)

Table 7.27 - Pearson correlation for school counsellors' attitudes towards computers and training about computers.

	Attitudes' score	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Training score	.448** (.002)	.303** (.038)	.368** (.011)	.400** (.005)	.346** (.017)	.487 (.001)	.453** (.001)	.223 (.131)	.113 (.451)

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

7.3 HEAD TEACHERS', DISTRICT OFFICERS' AND SCHOOL COUNSELLORS' SUPPORT OF THE UPTAKE OF ICT AND THEIR ATTITUDES TOWARDS COMPUTERS

As we have seen in Chapter 4 (see Section 4.2), one of the objectives of this study was to investigate the effects of head teachers', district officers' and school counsellors' attitudes towards computers on the support that they provided for the uptake of ICT in their schools. In order to investigate this objective, a Pearson correlation (two tailed) and a multiple regression analysis was used.

7.3.1 Pearson correlations

In Pearson correlation analysis the mean score of each of the eight attitudes towards computers subscales (Anxiety, Confidence, Usefulness, Liking, E-mail, Perceived Educational Impact, Perceived Social Impact, and Training Needs) was correlated with the support score of the uptake of ICT. As we have seen in Chapter 4 (see Section 4.7.3) the support score was obtained by summing head teachers', district officers' and school counsellors' responses to the hardware, software, organization/administration and curriculum applications items (minimum support score=20 and maximum support score=100). Higher support scores indicated more support for the uptake of ICT in school(s). The correlations between study variables are shown in Table 7.28 for head teachers, in Table 7.29 for district officers and in Table 7.30 for school counsellors.

Table 7.28 shows that each attitude subscale strongly correlated with the other attitudes subscales. The anxiety subscale correlated most strongly with liking (r=+.867, p=.000), confidence (r=+.860, p=.000) and usefulness (r=+.792, p=.000) subscales. Similarly, the usefulness subscale was correlated very strongly with liking (r=+.792, p=.000) and perceived educational impact (r=+.780, p=.000) subscales.

Table 7.28 also shows that there were positive correlations between head teachers' scores of their support for the uptake of ICT in their schools (behaviour) with seven of the eight attitudes towards computers subscales. The strongest correlation was found for anxiety subscale (r=+.468, p=.000) while the less strong for the training needs subscale (r=+.327, p=.005). There was no significant correlation between the score of support and the e-mail subscale (r=.219, p=.064).

*Table 7.28 - Pearson correlation for **head teachers'** attitudes towards computers and support of the uptake of ICT.*

	Behaviour	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Behaviour (Support of the uptake of ICT)	1	.468** (.000)	.435** (.000)	.428** (.000)	.442** (.000)	.219 (.064)	.439** (.000)	.371** (.001)	.327** (.005)
Anxiety		1	.860** (.000)	.792** (.000)	.867** (.000)	.443** (.000)	.639** (.000)	.563** (.000)	.683** (.000)
Confidence			1	.728** (.000)	.756** (.000)	.463 (.000)	.581** (.000)	.454** (.000)	.469** (.000)
Usefulness				1	.792** (.000)	.539** (.000)	.780** (.000)	.695** (.000)	.595** (.000)
Liking					1	.555** (.000)	.759** (.000)	.609** (.000)	.775** (.000)
E-mail						1	.698** (.000)	.601** (.000)	.334** (.004)
Educational Impact							1	.718** (.000)	.586** (.000)
Social Impact								1	.470** (.000)
Training Needs									1

** Correlation is significant at the 0.01 level (2-tailed).

Therefore, these correlations show that the computer anxiety, confidence, usefulness, liking, perceived educational and social impact, and training needs have a strong positive relationship to head teachers' support of the uptake of ICT in their schools.

Table 7.29 shows the correlations among the district officers' attitudes subscales as well as the correlations between district officers' score of support (behaviour) of the uptake of ICT and the attitudes' subscales. As can be seen from this table the majority of the attitudes subscales intercorrelated. Among these correlations the strongest was found between the usefulness and liking subscales (r=+.869, p=.000) and between the anxiety and confidence subscales (r=+.792, p=.000). There was no statistically significant correlation between email and anxiety (r=.073, p=.644), confidence (r=.256, p=.098) and training needs subscales (r=.282, p=.067).

Table 7.29 also shows that the score of support of the uptake of ICT was significantly correlated with three of the eight attitudes subscales. These were the confidence (r=+.357, p=.019), perceived educational impact (r=+.414, p=.006) and the training needs (r=+.373, p=.014) subscales.

Table 7.30 shows the correlations among school counsellors' attitudes subscales. Inspection of the correlations between the attitudes subscales shows that training needs subscale did not correlate significantly with confidence (r=.181, p=.223), usefulness (r=.194, p=.192), e-mail (r=.139, p=.351) and perceived social impact (r=.139, p=.351). In addition there was no statistically significant correlation between e-mail and perceived social impact (r=.048, p=.749) and between perceived educational impact and social impact (r=.207, p=.162).

Table 7.30 also shows the correlation between school counsellors' score of support of the uptake of ICT and the attitudes subscales. The correlations results shows that only the last subscale, the training needs subscale was positively correlated with the score of support of the uptake of ICT (r=+.327, p<.001). The correlations of the support score with the other seven attitudes subscales were not significant. The results of this section are discussed in detail in Section 7.4.2.

*Table 7.29 - Pearson correlation for **district officers'** attitudes towards computers and support of the uptake of ICT.*

	Behaviour	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Behaviour (Support of the uptake of ICT)	1	.277 (.072)	.357* (.019)	.292 (.057)	.268 (.082)	.120 (.442)	.414** (.006)	.057 (.717)	.373* (.014)
Anxiety		1	.792** (.000)	.627** (.000)	.718** (.000)	.073 (.644)	.403** (.007)	.596** (.000)	.627** (.000)
Confidence			1	.575** (.000)	.559** (.000)	.256 (.098)	.543** (.000)	.575** (.000)	.611** (.000)
Usefulness				1	.869** (.000)	.448** (.003)	.741** (.000)	.567** (.000)	.673** (.000)
Liking					1	.357* (.019)	.682** (.000)	.494** (.001)	.688** (.000)
E-mail						1	.657** (.000)	.349* (.022)	.282 (.067)
Educational Impact							1	.348* (.022)	.658** (.000)
Social Impact								1	.308** (.000)
Training Needs									1

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

*Table 7.30 - Pearson correlation for **school counsellors'** attitudes towards computers and support of the uptake of ICT.*

	Behaviour	Anxiety	Confidence	Usefulness	Liking	E-mail	Educational Impact	Social Impact	Training Needs
Behaviour (Support of the uptake of ICT)	1	.123 (.409)	.062 (.680)	.191 (.199)	.250 (.090)	.093 (.533)	.116 (.437)	.008 (.959)	.358* (.013)
Anxiety		1	.722** (.000)	.517** (.000)	.703** (.000)	.284 (.053)	.416** (.004)	.463** (.001)	.513** (.000)
Confidence			1	.547** (.000)	.564** (.000)	.426** (.003)	.560** (.000)	.334* (.022)	.181 (.223)
Usefulness				1	.730** (.000)	.412** (.004)	.654** (.000)	.384** (.008)	.194 (.192)
Liking					1	.417** (.004)	.648** (.000)	.398** (.006)	.516** (.000)
E-mail						1	.731** (.000)	.048 (.749)	.139 (.351)
Educational Impact							1	.207 (.162)	.308* (.035)
Social Impact								1	.139 (.351)
Training Needs									1

*. Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2-tailed).

7.3.2 Prediction of head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools

In order to investigate the effects of the eight attitudes towards computers subscales of head teachers, district officers and school counsellors on their support of the uptake of ICT in their schools a multiple regression analysis was used. The mean scores of the eight attitudes towards computers subscales (independent variables) were regressed with the score of the support (behaviour) of the uptake of ICT (dependent variable). For all regression models, the stepwise method was used to produce the most suitable empirically generated model. As we have seen in Chapter 4 (see Section 4.7.6), the stepwise regression analysis enters independent variable one at a time, to determine which one has the highest correlation with the dependent variable. If any of the independent variables is not a significant predictor to the regression model, it is removed automatically from the regression model (see Kinnear and Gray, 2000).

The stepwise multiple regression results for head teachers are shown in the following four tables. Table 7.31 shows the model summary results, Table 7.32 shows the analysis of variance (ANOVA), Table 7.33 shows the coefficients results of this analysis and Table 7.34 shows the excluded variables of the regression analysis.

Table 7.31 - Model Summary (head teachers).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468(a)	.219	.207	13.78481

a Predictors: (Constant), Anxiety.

Table 7.32 - ANOVA (b) (head teachers).

Model		Sum of Squares	df	Mean Square	F	*p*
1	Regression	3722.193	1	3722.193	19.588	.000(a) *
	Residual	13301.460	70	190.021		
	Total	17023.653	71			

a Predictors: (Constant), Anxiety.
b Dependent Variable: Behaviour.
* Significant (p<.05).

Table 7.33 - Coefficients (a) (head teachers).

Model		Unstandardized Coefficients		Standardized Coefficients	t	*p*
		B	Std. Error	Beta		
1	(Constant)	11.739	11.767		.998	.322
	Anxiety	12.819	2.896	.468	4.426	.000 *

a Dependent Variable: Behaviour
* Significant (p<.05).

Table 7.34 - Excluded Variables (b) (head teachers).

Model		Beta In	t	*p*	Partial Correlation	Collinearity statistics
						Tolerance
1	Confidence	.126a	.607	.546	.073	.261
	Usefulness	.155a	.892	.375	.107	.373
	Liking	.149a	.701	.486	.084	.249
	E-mail	.015a	.128	.898	.015	.804
	Perceived Educational Impact	.237a	1.752	.084	.206	.591
	Perceived Social Impact	.159a	1.245	.217	.148	.683
	Training needs	.015a	.101	.920	.012	.533

a Predictors in the Model: (Constant), Anxiety
b Dependent Variable: Behaviour

The prediction of the support of the uptake of ICT was assessed by inspecting the "Adjusted R^2" (see Table 7.31) and the contribution to the prediction of the independent variables was assessed by inspecting the standardized regression coefficients (*beta*) (see Table 7.34). Table 7.31 shows that the computer anxiety subscale explained 21% of the variance in head teachers' support of the uptake of ICT (see "Adjusted R^2" column). The Anova analysis in Table 7.32 showed that the regression model was significant (F=19.588, p=.000)[1]. These results mean that the seven other attitudes subscales were not significant predictors for head teachers' support of the uptake of ICT.

Table 7.33 confirms that the only significant predictor for the support of the uptake of ICT was the anxiety attitude subscale. The p value was significant (.000) and the beta was .468[2]. Finally, Table 7.34 shows the seven attitude subscales that were excluded from the regression model. As we have seen in Table 7.29, the correlation analysis showed that the highest positive correlations were between the majority of the attitudes subscales. According to regression analysis the high correlations between the independent variables creates the problem of multicolinearity. In other words, when two independent variables are very highly correlated, one of them is excluded from the regression analysis. Therefore, the seven attitudes subscales maybe excluded from the regression model because of the multicolinearity problem. Therefore, the results of the

[1] The p-value is statistically significant because it is less than 0.05.
[2] Note that the variables whose beta has a p value of less than 0.05 are significant.

regression analysis showed that the computer anxiety predicted 21% of the variance of head teachers' support of the uptake of ICT in their schools.

The following four tables show the results of the regression analysis for district officers. The "Adjusted R^2" column in Table 7.35 shows that only the Perceived Educational Impact attitude subscale predicted district officers' support of the uptake of ICT. This attitude subscale accounted for 15% of the variance in district officers' support of the uptake of ICT in their schools. Table 7.36 shows that the F value was 8.459 and the *p* value was .006, indicating that this regression model was statistically significant.

Table 7.35 - Model Summary (district officers).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.414(a)	.171	.151	12.69185

a Predictors: (Constant), Perceived Educational Impact.

Table 7.36 - ANOVA (b) (district officers).

Model		Sum of Squares	df	Mean Square	F	*p*
1	Regression	1362.661	1	1362.661	8.459	.006(a) *
	Residual	6604.408	41	161.083		
	Total	7967.070	42			

a Predictors: (Constant), Perceived Educational Impact.
b Dependent Variable: Behaviour.
* Significant (p<.05).

Table 7.37 - Coefficients (a) (district officers).

Model		Unstandardized Coefficients		Standardized Coefficients	t	*p*
		B	Std. Error	Beta		
1	(Constant)	6.316	16.270		.388	.700
	Perceived Educational Impact	11.447	3.936	.414	2.908	.006 *

a Dependent Variable: Behaviour.
* Significant (p<.05).

Table 7.38 - Excluded Variables (b) (district officers).

Model		Beta In	t	*p*	Partial Correlation	Collinearity statistics
						Tolerance
1	Aniety	.132a	.845	.403	.132	.838
	Confidence	.188a	1.116	.271	.174	.705
	Usefulness	-.032a	-.150	.882	-.024	.450
	Liking	-.025a	-.128	.899	-.020	.535
	E-mail	-.266a	-1.431	.160	-.221	.568
	Perceived Social Impact	-.099a	-.646	.522	-.102	.879
	Training needs	.178a	.941	.352	.147	.567

a Predictors in the Model: (Constant), Perceived Educational Impact
b Dependent Variable: Behaviour

Table 7.37 shows the contribution of the Perceived Educational Impact subscale in district officers' support of the uptake of ICT. The *p* value was significant (*p*=.006) and the beta value was .414. Table 7.38 shows that the other seven attitudes subscales were excluded from this regression analysis and therefore were not significant predictors of the support of the uptake of ICT. This happens, even though two of the subscales (confidence and training needs) in Table 7.29 were correlated with the support of the uptake of ICT, because of a high multicolinearity among those two attitudes subscales. The above results of the regression analysis showed that the perceived educational impact attitude subscale predicted 15% of the variance of head teachers' support of the uptake of ICT in their schools. Table 7.39, Table 7.40, Table 7.41 and Table 7.42 shows the results of the stepwise regression analysis for school counsellors.

Table 7.39 - Model Summary (school counsellors).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.358(a)	.128	.109	12.36716

a Predictors: (Constant), Training needs.

Table 7.40 - ANOVA (b) (school counsellors).

Model		Sum of Squares	df	Mean Square	F	*p*
1	Regression	1012.508	1	1012.508	6.620	.013(a) *
	Residual	6882.599	45	152.947		
	Total	7895.106	47			

a Predictors: (Constant), Training needs.
b Dependent Variable: Behaviour.
* Significant (p<.05).

Table 7.41 - Coefficients (a) (school counsellors).

Model		Unstandardized Coefficients		Standardized Coefficients	t	*p*
		B	Std. Error	Beta		
1	(Constant)	21.527	13.372		1.610	.114
	Training needs	8.345	3.243	.358	2.573	.013 *

a Dependent Variable: Behaviour.
* Significant (p<.05).

The results in Table 7.39 shows that the regression model predicted 11% of variance on school counsellors' support of the uptake of ICT (see "Adjusted R^2" column). Table 7.40 shows that the F value was 6.620 and the *p* value was .013. Table 7.41 shows that the only attitude subscale which added significant variance to the prediction was the training needs subscale. No other attitudes subscales were predictive.

Table 7.42 - Excluded Variables (b)(school counsellors).

Model		Beta In	t	*p*	Partial Correlation	Collinearity statistics
						Tolerance
1	Anxiety	-.082a	-.503	.618	-.076	.737
	Confidence	-.003a	-.022	.982	-.003	.967
	Usefulness	.126a	.886	.380	.132	.962
	Liking	.089a	.543	.590	.082	.733
	E-mail	.044a	.312	.756	.047	.981
	Perceived Educational Impact	.007a	.045	.965	.007	.905
	Perceived Social Impact	-.043a	-.303	.764	-.046	.981

a Predictors in the Model. (Constant), Training needs. b Dependent Variable: Behaviour.

The contribution of training needs subscale was .358 (p=.013). The excluded variables of the regression analysis are shown in Table 7.42. According to the regression analysis, in cases where the independent variables were not significantly correlated with the dependent ones, they were excluded from the regression models. The seven attitudes subscales excluded from the regression model because as we have seen in Table 7.30, they were not correlated with the schools counsellors' support score of the uptake of ICT. Therefore, the regression results shows that the training need subscale predicts 11% of the variance of school counsellors' support of the uptake of ICT in their schools.

7.4 DISCUSSION AND CONCLUSIONS

This chapter examined Greek head teachers', district officers' and school counsellors' attitudes towards computers and its effect on their support of the uptake of ICT in their school(s). The conclusions that were drawn from this chapter are presented and discussed in the following sections.

7.4.1 Head teachers', district officers' and school counsellors' attitudes towards computers

In order to assess head teachers', district officers' and school counsellors' attitudes towards computers, a 62-item questionnaire was used. This questionnaire was the same one that was used with the sample of teachers (see Chapters 4 and 6).

The descriptive statistics results (means and standard deviations) of the whole attitude questionnaire in this study showed that head teachers, district officers and school counsellors of the 72 Greek primary schools had favourable attitudes towards computers. In addition, data presented in Section 7.2 showed that all eight subscales in general

indicated positive attitudes towards computers. This means that head teachers, district officers and school counsellors were not computer anxious, were confident about computers and liked computers. Moreover, data showed that the educators had a high degree of perceived usefulness of using computers in education as well as in society. Finally, the high mean score of training needs subscale indicates that the educators were very interested in learning more about computers.

Another finding of this study was that district officers and school counsellors scored relatively low for the e-mail subscale compared to other attitude subscales. One possible explanation for this relatively low score may be the fact that many district officers and school counsellors did not use e-mail (see Chapter 5, Section 5.8.5). Another explanation may be that those who had e-mail were not sufficiently comfortable with using it. Therefore, this finding suggests that one of the objectives of the training programmes for these educators should be the improvement of their positive attitudes regarding the role of using e-mail in education.

Furthermore, a number of important findings were obtained from specific attitude items with low mean scores. For instance, it is worth noting that although the confidence subscale had a high mean score, the mean score for item 16 of this subscale ('I have a lot of self-confidence when it comes to working with computers') was 3.60 for head teachers, 3.60 and 3.49 for district officers and school counsellors respectively. This shows that the vast majority of the responses in this item were in a neutral or non positive range. On the other hand, this low attitude mean score may represent inexperience or lack of training in the use of computers. Therefore, future ICT strategies for the support of the uptake of ICT should focus on those factors which are more likely to influence positively head teachers', district officers' and school counsellors' computer self-confidence. In addition it is worth noting that the item 51 ('Computers harm relations between people') of school counsellors had low a mean score (M=3.45). This means that although school counsellors tend to agree that the use of computers contribute positively in society, a small minority of them did not anticipate that it will make significant changes to peoples' relationships. This finding suggests that the training programmes aiming to promote the support of ICT in schools should increase school counsellors' positive attitudes towards the benefits of using ICT for society and human relations.

The finding about the positive attitudes of head teachers, district officers and school counsellors is consistent with the one presented in Chapter 6, for teachers. These results show that the teaching and administrative staff of the 72 Greek primary schools had very positive attitudes towards computers; this fact is possibly a factor that influenced positively these schools to engage in the introduction and implementation of ICT through pilot programmes. In addition, these positive attitudes of the respondents, is an encouraging finding which means that one may expect a positive influence on further implementation and integration of ICT in teaching in these 72 Greek primary schools.

The finding regarding the positive attitudes is different from what has been reported in a previous study of Greek head teachers who did not have very positive attitudes in secondary schools in the 1980s (Pelgrum and Plomp, 1993). As we have seen in Chapter 2 (see Section 2.3.4.2) these less positive attitudes of Greek head teachers can be explained through the fact that at the end of 1980s' in Greece only about 5% of the schools in the country used computers. Therefore, the results of the current study suggest an upward change in head teachers' attitudes toward computers over the last decade. Furthermore, the finding of the current study is consistent with the head teachers' positive attitudes towards ICT in 21 education systems in the late 1990s (Pelgrum and Anderson, 2001).

Another objective of this study was to determine what differences and relationships, if any, existed between demographic variables with head teachers', district officers' and school counsellors' attitudes towards computers. The findings showed similarities as well as differences in several aspects of computer attitudes, compared with the findings of teachers presented in Chapter 6. Therefore, in this section only new findings regarding the attitudes are discussed in detail.

One way ANOVA results indicated that head teachers', district officers' and school counsellors' attitudes' scores did not differ statistically significantly by gender, age, qualifications, years of service, or school's geographical area. This implies that the respondents' attitudes do not depend on these variables. One possible explanation of the finding related to the variable of gender is the low number of females in the head teachers', district officers' and school counsellors' sample. For example, within the school counsellors' sample there were only three females (out of a total of 47). It might be that these low numbers of females included in the survey were not sufficient for a

valid comparison with males. Hence, future studies involving larger numbers of head teachers, district officers and school counsellors are needed to examine this issue. A possible reason for the other non-significant differences in attitudes towards computers is (see Chapter 6, Section 6.4) the fact that currently in Greece many more educators have attended university and training courses than a decade ago. Thus, the increased computer experience over the past decade may explain the disappearance of these differences in this sample. Despite the fact that most of the head teachers, district officers and school counsellors have never used computers, it is possible that their positive attitudes were shaped by the work place environment or by the new policy towards the uptake of ICT of the Ministry of Education.

One way ANOVA results showed that the attitudes of head teachers who worked in schools where ICT was used as a tool differ significantly from the head teachers who worked in schools where ICT was used as an object. This finding is encouraging in the sense that one may expect a more positive influence on further integration of ICT in schools where ICT is used as a tool in teaching. Furthermore, the one way ANOVA results showed that the school counsellors who used ICT for administrative purposes had significantly more positive attitudes than those who did not use ICT. One plausible explanation for this finding is that school counsellors who used ICT for administrative purposes tended to be less anxious and more positive towards computers. In addition, the results of the one way ANOVA showed that head teachers who had access to a computer for personal use outside of the workplace had more favourable attitudes than those who had not. This finding was similar to the one discussed for teachers in Chapter 6.

The other interesting finding was related to attitudes and knowledge about computers. Head teachers' knowledge concerning computers scores and ICT abilities' scores were associated with the overall attitude scores and all attitude toward computers subscales with the exception of the e-mail, perceived educational impact and social impact. The Pearson correlations results also showed that district officers' knowledge concerning computer scores and ICT abilities' scores were positively correlated with anxiety, confidence, liking and training need attitude subscales whereas school counsellors' knowledge concerning computer scores and ICT abilities' scores were positively correlated only with the e-mail subscale. These correlation results mean that when head teachers, district officers and school counsellors have more knowledge about computers,

most of them also have more positive attitudes towards computers. This issue was discussed in Chapter 6 (see Section 6.4).

The results also showed that there was a significant correlation between head teachers' training scores and overall attitudes scores as well as anxiety and liking subscales. There also was a significant positive relationship between school counsellors' attitude scores and their training scores. Additionally, there was a significant positive relationship between school counsellors' training scores and anxiety, confidence, usefulness, liking and educational impact subscales. This finding means that when head teachers and school counsellors received more hours of computer training, they also had more positive attitudes toward computers. The importance of this finding is similar to the one discussed in Chapter 6 (see Section 6.4).

No significant correlations were found between district officers' training scores and either attitude scores or the eight attitude subscales scores. Therefore, it appears that district officers' attitudes were unrelated to their training. One possible reason for this finding could be the low number of hours of district officers' computer training. As we have seen in Chapter 5 (see Section 5.9) they had the lowest number of training hours than other respondents of this study. Therefore, this possibly influenced their attitudes.

7.4.2 The effects of head teachers', district officers' and school counsellors' attitudes towards computers on the support of the uptake of ICT

Another objective of this study was to investigate the influence of head teachers', district officers' and school counsellors' attitudes towards computers on their support about the uptake of ICT in their schools. As we have seen in Section 7.3, Pearson correlations were calculated to examine whether there were relationships among educators' eight attitudes subscales and the behaviour about the support of the uptake of ICT. Next a multiple regression analysis with stepwise method was carried out in order to estimate the effects of the eight attitude subscales on the support of the uptake of ICT.

The Pearson correlations' results presented in Section 7.3 showed that all head teachers' attitude subscales, except e-mail subscales were found to be positively correlated to their support of the uptake of ICT in their schools. District officers' support was significantly correlated with three of the eight subscales. These were the confidence, perceived educational impact and the training needs. However, the findings from the Pearson

correlations showed that school counsellors' support was only positively correlated with the training needs subscale. This finding means that head teachers, district officers and school counsellors with more positive attitudes towards the above factors were more likely to support the uptake of ICT in their schools.

While many attitude subscales in the head teachers' and district officers' Pearson correlations were positively associated with the support of the uptake of ICT, the results of the regression analysis showed that only one attitude subscale in each regression model contributed significantly to the prediction of behaviour support. Most specifically, in the head teachers' regression model, the computer anxiety subscale explained 20.7% of the variance in support of the uptake of ICT whereas the regression model for district officers showed that the perceived educational impact explained 15.1% of the variance. Finally, the regression model for school counsellors showed that the training needs subscale explained 10.9% of the variance. However, as discussed in Chapter 9 (see Section 9.4.2), the Cronbach alpha in school counsellors' training needs subscale was very low. Therefore, this subscale suggesting the presence of measurement problem and does not allow to generalise its results.

Several conclusions can be made from the Pearson correlations and the regression analysis. Firstly, the findings from the Pearson correlations provide evidence for the assumption that head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools is related to attitudes towards computers. Most specifically, the results of the current study confirm those of other studies demonstrating the impact of attitudes on peoples' behaviour (e.g. Fishbein and Ajzen, 1975, Triandis, 1980) as well as the impact of attitudes towards computers on behaviours that related to computer utilisation (e.g. Kay, 1990; Al-Khaldi and Al-Jabri, 1998).

Secondly, the findings from the regression analysis suggest that computer anxiety and not the other seven attitudes subscales influenced the most strongly head teachers' support of the uptake of ICT in their schools. Similar findings were found for the educational impact subscale in district officers' regression model as well as for the training needs subscale in school counsellors' regression model. This means that head teachers would probably support the uptake of ICT in their schools if they have a low level of computer anxiety. Furthermore, district officers will support the uptake if they perceive the educational impact of computers whereas school counsellors will support

the uptake if they have positive attitudes towards computer training. Therefore, this suggests that in order for ICT strategies to help head teachers, district officers and school counsellors to support the uptake of ICT in their schools, it may be useful to help them develop more positive attitudes towards computers. More positive attitudes may be increased by helping head teachers, district officers and school counsellors identify and overcome obstacles to the uptake of ICT and by emphasising the advantages of the support of the uptake in their schools.

Thirdly, the influence of different attitude subscales in head teachers', district officers' and school counsellors' support of the uptake of ICT as well as the different explained variance in regression models could be due to different roles that they have in the Greek educational system. Although head teachers, district officers and school counsellors worked in the same local setting, they had different support roles in the uptake of ICT in their schools. For instance, as we have seen in Chapter 1 (see Section 1.2), district officers usually have the responsibility for the overall management of a number of schools in their area. On the other hand, school counsellors are those that undertake the facilitation of the introduction and use of an innovation in schools via informing schools and organising educational seminars. Therefore, one would expect to see differences in the effects of attitudes towards computers on the explained variance of the support of ICT in schools of head teachers, district officers and school counsellors.

Finally, it is important to recognise that head teachers', district officers' and school counsellors' behaviour was influenced by the specific attitude subscale, which on its own explained a substantial percent of the variance in support of the uptake of the ICT behaviour. However, the percentage of the variance was not very high. On the one hand, this percentage of the variance indicates that the majority of the respondents' prediction is explained by variables not specified in the regression analysis. On the other hand, the low percentage of the variance of district officers and school counsellors could be due to the low reliability of the attitude subscales that predicted their support. As we have seen in Chapter 4 (see Section 4.6.5.2), the Cronbach Alpha of the school counsellors' training needs subscale was .57. Therefore, future studies should extend this attitude subscale by investigating and adding other attitude items to provide a better understanding of the relationship that exists between school counsellors' attitudes and their support of the uptake of ICT in their schools.

In summary, the results presented in this chapter show that, in general, head teachers, district officers and school counsellors of the 72 Greek primary schools had very positive attitudes towards computers. A number of the eight attitude subscales correlated with head teachers', district officers' and school counsellors' behaviour. In addition, the computer anxiety subscale predicted head teachers' support of the uptake of ICT whereas educational impact subscale predicted district officers' support. The training needs subscale predicted school counsellors' support of the uptake of ICT in their schools.

Chapter 8 presents other psychological factors that affect head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools as well as their actual support.

CHAPTER 8

HEAD TEACHERS', DISTRICT OFFICERS' AND SCHOOL COUNSELLORS' INTENTION AND THEIR BEHAVIOUR IN SUPPORTING THE UPTAKE OF ICT IN THEIR SCHOOLS

8.1 INTRODUCTION

One of the objectives of this study was to investigate and predict head teachers', district officers' and school counsellors' intention and actual behaviour to support the uptake of ICT in their schools using the Theory of Reasoned Action (TRA) and Theory of Planned Behavioural (TPB). This chapter presents the results of the analysis of the data based on these two theories of social psychology.

Firstly, the descriptive statistics and Pearson correlations of the results relating to the components of the theories are presented. Secondly, the results of the hierarchical multiple regression analysis are presented in order to predict the educators' intention and behaviour to support the uptake of ICT in their schools. In addition, the effects of attitude toward behaviour, subjective norm and perceived behavioural control on intention are presented as well as the effects of intention and perceived behavioural control on behaviour. Thirdly, head teachers', district officers' and school counsellors' behavioural, normative and control beliefs are presented as well as their relationships with intention and behaviour to support the uptake of ICT in schools. Finally, the results of this study are discussed in relation to findings from previous TPB studies.

8.2 DESCRIPTIVE STATISTICS AND CORRELATIONS

As we have seen in Chapter 4 (see Section 4.7.6) for all three groups the descriptive statistics (mean and standard deviation, minimum and maximum mean score) were calculated for all direct and indirect components of TRA and TPB[1]. These descriptive statistics are shown in Table 8.1.

[1] As we have seen in Chapter 3 (see Section 3.5.1), the direct components of the TRA are the attitude toward behaviour, subjective norm, intention and behaviour while the indirect components are the behavioural and normative beliefs. The TPB (see Section 3.5.3) in addition to the above components includes the perceived behavioural control and the control beliefs.

Table 8.1 - Means (M), standard deviations (SD), minimum and maximum score for variables of the Theory of Reasoned Action and Theory of Planned Behaviour

	Head teachers				District officers				School counsellors			
Variable	***M***	***SD***	***Minimum***	***Maximum***	***M***	***SD***	***Minimum***	***Maximum***	***M***	***SD***	***Minimum***	***Maximum***
Behaviour (B)*	63.32	15.485	36	95	53.30	13.773	34	89	55.62	13.101	29	89
Intention (I)	6.62	0.846	3	7	5.91	1.211	1	7	5.91	1.120	3	7
Attitude toward behaviour (A)	6.50	0.805	4	7	6.28	0.734	4	7	6.30	0.689	5	7
Subjective norm (SN)	6.58	0.765	3	7	6.19	0.906	4	7	6.26	0.765	4	7
Perceived behavioural control (PBC)	5.65	1.291	2	7	4.72	1.241	1	7	4.64	1.309	2	7
Belief-Based Attitudes (B.A)**	1432.60	192.122	982	1764	1337.53	221.698	934	1764	1333.06	206.208	901	1722
Belief-Based Subjective Norm (B.SN)***	457.92	103.323	165	588	457.93	73.997	311	588	413.32	72.484	277	549
Belief-Based Perceived behavioural control (B.PBC)****	715.17	156.126	343	966	707.00	97.493	436	924	633.57	163.432	134	854

Notes.* Behaviour as expressed at Stage 2 (June 2002).
** To produce a belief-based estimate of attitude, belief strength and outcome evaluation measures were multiplied and the resulting products were summed.
*** To produce a belief-based estimate of subjective norm, belief strength and motivation to comply measures were multiplied and the resulting products were summed.
**** To produce a belief-based estimate of perceived behavioural control, belief strength and perceived power were multiplied and the resulting products were summed.

Mean scores in Table 8.1 show that, on average, head teachers, district officers and school counsellors rated all the direct variables (behaviour, intention, attitude, subjective norm and perceived behavioural control) of TRA and TPB relatively high[1]. The mean of behaviour for head teachers, district officers and school counsellors was 63.32, 53.30 and 55.62 respectively. This indicates that on average they supported the uptake of ICT. The mean of intention was high, indicating that head teachers, district officers and school counsellors intended to support the uptake of ICT in their schools. In addition, as indicated by the attitude means, respondents had positive attitudes towards the support of the uptake of ICT in their schools. They also felt, according to the subjective norm means, social pressure to support the uptake of ICT. However, the mean score of perceived behavioural control in all groups was relatively low, indicating that they had less positive perception of control over the support of the uptake of ICT in their schools.

According to Ajzen (2002), beliefs play an important role in the TPB and "are assumed to provide the cognitive and affective foundations for attitudes, subjective norms, and perceptions of behavioural control" (p. 7). As we have seen in Chapter 4 (see Section 4.5.5.2) a small pilot study was conducted to identify head teachers', district officers' and school counsellors' behavioural, normative and control beliefs. Table 8.1 presents the descriptive statistics for these beliefs[2]. The mean Belief-Based Attitudes score was, for all groups, relative high indicating that head teachers, district officers and school counsellors had on average a positive evaluation of supporting the uptake of ICT in their schools[3]. The mean of Belief-Based Subjective Norm was also relatively high indicating that most of their important others would approve their support of the uptake of ICT in their schools. However, the mean of Belief-Based Perceived behavioural control was relative low indicating that head teachers, district officers and school counsellors on average

[1] Possible range for behaviour was 20 to 100. A score of 100 represented the greatest amount of support of the uptake of ICT in a school and a score of 20 represented the least amount of support. Possible range for intention, attitude toward behaviour, subjective norm, and perceived behavioural control was 1 to 7. Higher scores (e.g. 6, 7) on these components represented more strong intention, more positive attitudes, high perception of subjective norm and high perceived behavioural control.

[2] In order to produce a belief-based estimate of attitudes (behavioural beliefs), subjective norm (normative beliefs) and perceived behavioural control (control beliefs), the beliefs were coded in accordance with the Ajzen's (2002) recommendations (see Chapter 4, Section 4.7.4.1). For example, to produce the belief-based estimate of attitude of this study belief strength and outcome evaluation measures were multiplied and the resulting products were summed (see M=1432.60 in Table 8.1).

[3] Possible range for Belief-Based Attitudes was 36 to 1764, for belief-based subjective norm was 12 to 588 and for belief-based perceived behavioural control was 20 to 980. Higher scores on these components represented more positive belief-based attitudes, subjective norms and perceived behavioural control.

felt that specific control factors would not be present to help them support the uptake of ICT in their schools.

Examination of Table 8.1 shows that head teachers had higher mean scores than district officers and school counsellors. They had a stronger intention to support the uptake of ICT in their schools, more positive attitudes, a stronger subjective norm and perceived behavioural control. The results in Table 8.1 also show that school counsellors had higher means in behaviour, attitude and subjective norm variables than district officers. On the other hand, district officers had higher mean scores on perceived behavioural control, and on belief-based attitudes, subjective and perceived behavioural control than school counsellors. Furthermore, district officers and school counsellors had the same intention mean score.

The second purpose of the analysis of data in this chapter was to examine the relationships among the TPB variables. First of all, the relationship between the dependent variables (behaviour and intention) and the independent variables (attitude, subjective norm and perceived behavioural control) of TPB was examined. Secondly, the relationships between the direct (attitude, subjective norm and perceived behavioural control) and indirect measures (behavioural, subjective and control beliefs) of TPB were also examined. These relationships were examined using Person correlations (two tailed). Table 8.2 shows the Pearson correlations for head teachers, Table 8.3 for district officers and Table 8.4 for school counsellors. In these tables, a p value less than 0.01 and 0.05 was reported as statistically significant.

Table 8.2 shows that the head teachers' correlation results among the TRA and TPB variables were positive and moderately high. The correlations ranged from .257 to .687. Intention (r=+.357, p<0.01) and perceived behavioural control (r=+.364, p<0.01) positively correlated with behaviour. Attitude toward behaviour (r=+.424, p<0.01) had the strongest correlation with intention, followed by perceived behavioural control (r=+.421, p<0.01) and subjective norm (r=+.386, p<0.05).

This study also examined whether the behavioural, normative and control beliefs correlated with the corresponding direct measures (attitudes, subjective norm and perceived behavioural control). According to the TPB a strong correlation confirms that

these beliefs were identified very well in the pilot study and were measured properly in the main study.

*Table 8.2 – Pearson correlations for the **head teachers'** results using the variables of the Theory of Reasoned Action and Theory of Planned Behaviour.*

Variable	B	I	A	SN	PBC	B.A	B.SN	B.PBC
Behaviour (B)	1.00	.357** (.002)	.385** (.001)	.399** (.001)	.364** (.002)	.393** (.001)	.280* (.017)	.296* (.011)
Intention (I)		1.00	.424** (.000)	.386* (.001)	.421** (.000)	.343** (.003)	.310** (.008)	.182 (.127)
Attitude toward behaviour (A)			1.00	.687** (.000)	.427** (.000)	.498** (.000)	.327** (.005)	.257* (.030)
Subjective norm (SN)				1.00	.565** (.000)	.507** (.000)	.419** (.000)	.377** (.001)
Perceived behavioural control (PBC)					1.00	.461** (.000)	.443** (.000)	.528** (.000)
Belief-Based Attitudes (B.A)						1.00	.560** (.000)	.438** (.000)
Belief-Based Subjective Norm (B.SN)							1.00	.462** (.000)
Belief-Based Perceived behavioural control (B.PBC)								1.00

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 8.2 shows that the indirect variables of the TPB, namely belief-based attitudes, belief-based subjective norm and belief-based perceived behavioral control were correlated significantly with the corresponding direct variables (attitude, subjective norm and perceived behavioural control). Finally, all of variables intercorrelated except belief-based perceived behavioural control with intention (r=.182, p=.182).

The correlations of the district officers' results in Table 8.3 show that the direct variables of the TPB were associated with intention and behaviour. Behaviour correlated positively with intention (r=+.467, p<0.01) and perceived behavioural control (r=+.525, p<0.01). Positive correlations also existed between each direct variable and intention in the following order of decreasing correlation: subjective norm (r=+.688, p<0.05), attitude toward behaviour (r=+.672, p<0.01) and perceived behavioural control (r=+.648, p<0.01). Similarly, significant correlations existed between attitude and

*Table 8.3 – Pearson correlations for the **district officers'** results using the variables of the Theory of Reasoned Action and Theory of Planned Behaviour.*

Variable	B	I	A	SN	PBC	B.A	B.SN	B.PBC
Behaviour (B)	1.00	.467** (.002)	.533** (.000)	.598** (.000)	.525** (.000)	.412** (.006)	.501** (.001)	.376* (.013)
Intention (I)		1.00	.672** (.000)	.688* (.000)	.648** (.000)	.489** (.001)	.383* (.011)	.348* (.022)
Attitude toward behaviour (A)			1.00	.707** (.000)	.532** (.000)	.675** (.000)	.338** (.027)	.178 (.255)
Subjective norm (SN)				1.00	.704** (.000)	.525** (.000)	.380* (.012)	.140 (.371)
Perceived behavioural control (PBC)					1.00	.395** (.009)	.333* (.029)	.173 (.268)
Belief-Based Attitudes (B.A)						1.00	.278 (.071)	.351* (.021)
Belief-Based Subjective Norm (B.SN)							1.00	.238 (.124)
Belief-Based Perceived behavioural control (B.PBC)								1.00

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

*Table 8.4 – Pearson correlations for the **school counsellors'** results using the variables of the Theory of Reasoned Action and Theory of Planned Behaviour.*

Variable	B	I	A	SN	PBC	B.A	B.SN	B.PBC
Behaviour (B)	1.00	.273 (.063)	.307* (.036)	.194 (.191)	.296* (.043)	.253 (.086)	.410** (.004)	.041 (.784)
Intention (I)		1.00	.428** (.003)	.381* (.008)	.453** (.001)	.339* (.020)	.292* (.046)	.185 (.213)
Attitude toward behaviour (A)			1.00	.265 (.072)	.267 (.070)	.395** (.006)	.275 (.061)	.087 (.561)
Subjective norm (SN)				1.00	.420** (.003)	.311** (.033)	.262 (.075)	-.098 (.512)
Perceived behavioural control (PBC)					1.00	.345* (.018)	.225 (.128)	-.092 (.538)
Belief-Based Attitudes (B.A)						1.00	.466** (.001)	.246 (.096)
Belief-Based Subjective Norm (B.SN)							1.00	.341* (.019)
Belief-Based Perceived behavioural control (B.PBC)								1.00

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

belief-based attitude (r=+.675, p<0.01) and subjective norm and belief-based subjective norm (r=+.380, p<0.05). Belief-based perceived behavioural control, however, did not correlate significantly with either perceived behavioural control (r=.173, p=.268) or subjective norm (r=.140, p=.371), belief-based subjective norm (r=.238, p=.124) and attitude toward behaviour (r=.178, p=.255).

Table 8.4 shows the correlations among the TPB variables of school counsellors. Attitude toward the behaviour, subjective norm and perceived behavioural control all correlated significantly with school counsellors' intention (r=+.428, r=+.381, r=+.453, respectively). Behaviour was positively correlated with perceived behavioural control (r=+.296, p<0.05), but not with intention (r=.273, p=.063). In addition, Table 8.4 shows that attitude toward behaviour was correlated with belief-based attitudes. However, the belief-based normative norm and belief-based perceived behavioural control were not correlated with subjective and perceived behavioural control respectively. According to the TPB, these non significant correlations of school counsellors' belief-based subjective norm and perceived behavioural control in Table 8.4 as well as of district officers' belief-based perceived behavioural control in Table 8.3 mean that the pilot study may not have been identified and measured their normative and control beliefs properly (see also Section 8.4).

The third step of the analysis of the TPB variables was the regression analysis. The results of this analysis are presented in the following sections.

8.3 PREDICTION OF INTENTION AND BEHAVIOUR

Two hierarchical multiple regression analyses were used separately for head teachers, district officers and school counsellors. The first hierarchical regression analysis was performed in order to predict head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools and the second in order to predict their actual support of the uptake of ICT.

For each hierarchical regression, two steps (Models) were performed in which the order of variables for the analysis was based on the theoretical framework of the TRA (attitude and behaviour) and TPB (attitude, subjective norm and perceived behavioural control). In first hierarchical regression analysis, intention (dependent variable) was regressed on attitude toward behaviour and subjective norm (Step 1: Model 1 "TRA"), followed by

perceived behavioural control (Step 2: Model 2 "TPB"). In the second hierarchical regression analysis, behaviour (dependent variable) was regressed on intention (Step 1: Model 1 "TRA") and then on perceived behavioural control (Step 2: Model 2 "TPB"). The prediction of the intention and behaviour in the regression models of this study was assessed by inspecting the "Adjusted R^2" which is shown in Model Summary tables. This is the proportion of variance that can be explained by the independent variables. The relative contribution of each independent variable to explaining the variance in the dependent variable was determined by the beta weight (see Coefficients tables). The variables whose standardized coefficients (beta) had a *p* value (see *p* column) of less than 0.05 were significant. The results of the regression analyses are presented in the following sections for each educator group (head teachers, district officers and school counsellors).

8.3.1 Prediction of head teachers' intention and behaviour

Tables 8.5, 8.6 and 8.7 show the results of the hierarchical analyses for the prediction of head teachers' intention to support the uptake of ICT in their schools.

Table 8.5 - Model Summary (head teachers' intention).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 "TRA"	.444(a)	.197	.173	.770
2 "TPB"	.500(b)	.250	.217	.749

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour, and perceived behavioural control.

Table 8.6 - ANOVA(c) (head teachers' intention).

Model		Sum of Squares	df	Mean Square	F	*p*
1 "TRA"	Regression	10.011	2	5.005	8.452	.001(a) *
	Residual	40.864	69	.592		
	Total	50.875	71			
2 "TPB"	Regression	12.735	3	4.245	7.569	.000(b) *
	Residual	38.140	68	.561		
	Total	50.875	71			

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour, and perceived behavioural control.
c Dependent Variable: Intention.
* Significant (p<.05).

Table 8.7 - Coefficients(a) (head teachers' intention).

Model		Unstandardized Coefficients		Standardized Coefficients	t	*p*
		B	*Std. Error*	*Beta*		
1 "TRA"	(Constant)	3.260	.837		3.895	.000 *
	Attitude toward behaviour	.315	.156	.300	2.021	.047 *
	Subjective norm	.200	.164	.180	1.215	.228 **
2 "TPB"	(Constant)	3.414	.818		4.176	.000 *
	Attitude toward behaviour	.294	.152	.279	1.929	.058 **
	Subjective norm	3.973E-02.184	.176	.036	.226	.822 **
	Perceived behavioural control	.323	.084	.281	2.204	.031 *

a Dependent Variable: Intention.
* Significant (p<.05).
** Not significant (p>.05).

Step 1 (see Model 1 "TRA") in Table 8.5 and Table 8.6 shows that both attitude toward behaviour and subjective norm contributed to the prediction of intention (F=8.452, p=.001)[1]. Attitude and subjective norm explained 17.3% of the variance in head teachers' intention to support the uptake of ICT in their schools (see "Adjusted R Square" column in Table 8.5). The beta coefficients in Table 8.7 shows that only attitude towards behaviour was a significant predictor of head teachers intention (*beta*= .300, p=.047)[2].

Table 8.5 shows that the addition of perceived behavioural control in Step 2 (see Model 2 "TPB") explained an additional 5% (Adjusted R Square=21.7%) of the variance in head teachers' intention. Table 8.7 shows that perceived behavioural control was a significant predictor of intention (*beta*=.281, p=.031) while the attitude toward behaviour (p=.058) and subjective norm were not (p=.822).

From this analysis, attitude therefore was the most important factor in predicting head teachers intention only in TRA model. The perceived behavioural control was a better variable indicator than the other two variables of the TPB, namely attitude and subjective norm. The addition of perceived behavioural control in the TPB model explained a significant additional proportion of variance in head teachers' intention.

[1] As we have seen in Chapter 6, if "p" is greater than 0.05, we can conclude that the model is not significant (a relationship could not be found).
[2] The variables whose beta has a p value of less than 0.05 are significant.

Tables 8.8, 8.9 and 8.10 below show the results of the hierarchical regression analyses for the prediction of head teachers' support of the uptake of ICT in their schools.

Table 8.8 - Model Summary (head teachers' behaviour).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 "TRA"	.357(a)	.128	.115	14.565
2 "TPB"	.428(b)	.183	.160	14.194

a Predictors: (Constant), Intention.
b Predictors: (Constant), Intention, perceived behavioural control.

Table 8.9 - ANOVA(c) (head teachers' behaviour).

Model		Sum of Squares	Df	Mean Square	F	*p*
1 "TRA"	Regression	2174.730	1	2174.730	10.252	.002(a) *
	Residual	14848.923	70	212.127		
	Total	17023.653	71			
2 "TPB"	Regression	3121.592	2	1560.796	7.747	.001(b) *
	Residual	13902.061	69	201.479		
	Total	17023.653	71			

a Predictors: (Constant), Intention.
b Dependent Variable: Intention, perceived behavioural control.
c Dependent Variable: Behaviour.
* Significant (p<.05).

Table 8.10 - Coefficients(a) (head teachers' behaviour).

		Unstandardized Coefficients		Standardized Coefficients	t	*p*
Model		B	Std. Error	Beta		
1 "TRA"	(Constant)	20.005	13.636		1.467	.147 **
	Intention	6.538	2.042	.357	3.202	.002 *
2 "TPB"	(Constant)	15.626	13.442		1.162	.249 **
	Intention	4.539	2.193	.248	2.069	.042 *
	Perceived behavioural control	3.118	1.438	.260	2.168	.034 *

a Dependent Variable: Behaviour.
* Significant (p<.05).
** Not significant (p>.05).

The first step (see Model 1 "TRA") of the regression analysis in Table 8.8 shows that intention significantly explained 11.5% of the variance in head teachers' support of the uptake of ICT in their schools. Table 8.10 shows that intention was a significant predictor in head teachers' behaviour (*beta*=.357, *p*=.002).

Table 8.8 shows that when the additional component of the TPB, the perceived behavioural control, was entered into the second regression model (see Model 2 "TPB"),

the percentage of explained variance increased to 16%. Examination of the standardized coefficients (*beta*) in Table 8.10 shows that the perceived behavioural control was the most important predictor of behaviour (*beta*=.260, *p*=.034) and intention was the second important predictor (*beta*=.248, *p*=.042). Therefore, these results show that head teachers' support of the uptake of ICT was predicted by intention in Step 1 (see Model 1 "TRA") and intention and perceived behavioural control in Step 2 (see Model 2 "TPB"). Furthermore, the amount of explained variance in Step 2 of the regression analysis was increased by the addition of perceived behavioural control.

8.3.2 Prediction of district officers' intention and behaviour

Tables 8.11, 8.12 and 8.13 show the results of the regression analyses for district officers' intention to support the uptake of ICT in their schools. As can be seen from Step 1 (see Model 1 "TRA") in Table 8.11 and 8.12, the regression analysis was significant and attitude and subjective norm explained 52% of variance in district officers' intention to support the uptake of ICT in their schools. Table 8.13 shows the standardized coefficients (*beta*) for each independent variable. The biggest contributor was the subjective norm (*beta*=.426, *p*=.007) and the second biggest contributor was the attitude toward the behaviour (*beta*=.371, *p*=.019). Adding the perceived behavioural control to Step 2 (see Model 2 "TPB") increased the amount of explained variance from 52% to 55.6%.

Table 8.11 - Model Summary (district officers' intention).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 "TRA"	.737(a)	.543	.520	.839
2 "TPB"	.767(b)	.588	.556	.807

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour and perceived behavioural control.

Table 8.12 - ANOVA(c) (district officers' intention).

Model		Sum of Squares	df	Mean Square	F	*p*
1 "TRA"	Regression	33.443	2	16.721	23.731	.000(a) *
	Residual	28.185	40	.705		
	Total	61.628	42			
2 "TPB"	Regression	36.227	3	12.076	18.540	.000(b) *
	Residual	25.401	39	.651		
	Total	61.628	42			

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour, and perceived behavioural control.
c Dependent Variable. Intention. * Significant (p<.05).

Table 8.13 - Coefficients(a) (district officers' intention).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	*Std. Error*	*Beta*		
1 "TRA"	(Constant)	-1.458	1.124		-1.297	.202 **
	Attitude toward behaviour	.612	.249	.371	2.454	.019 *
	Subjective norm	.569	.202	.426	2.817	.007 *
2 "TPB"	(Constant)	-1.003	1.103		-.910	.369 **
	Attitude toward behaviour	.578	.240	.350	2.405	.021 *
	Subjective norm	.307	.232	.230	1.322	.194 **
	Perceived behavioural control	.293	.142	.300	2.067	.045 *

a Dependent Variable: Intention.
* Significant (p<.05).
* Not significant (p>.05).

Examination of the standardised coefficients (*beta*) in Table 8.13 shows that the major contribution to explained variance in district officers' intention to support the uptake of ICT was made by attitude (*beta*=.350, *p*=.021) and by perceived behavioural control (*beta*=.300, *p*=.045). The subjective norm, although found to have the strongest effect on TRA model, was not significant in the TPB model (*p*=.194). In the TRA model, therefore, both the attitude and subjective norm were significant predictors in district officers' intention to support the uptake of ICT. Attitude towards behaviour and perceived behavioural control made significant contributions in the TPB model, whereas subjective norm was not significant. The following three tables (Tables 8.14, 8.15 and 8.16) show the results of the hierarchical regression analyses for district officers' behaviour.

Table 8.14 - Model Summary (district officers' behaviour).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 (TRA)	.467(a)	.218	.199	12.327
2 (TPB)	.551(b)	.303	.268	11.781

a Predictors: (Constant), Intention.
b Predictors: (Constant), Intention, perceived behavioural control.

Table 8.14 shows that intention, explained 19.9% of the variance in district officers' support of the uptake of ICT in their schools (see Model 1 "TRA"). An examination of the beta weight in Table 8.16 shows that intention significantly predicted district officers' behaviour (*beta*=.467, *p*=.002).

Table 8.15 - ANOVA(c) (district officers' behaviour).

Model		Sum of Squares	Df	Mean Square	F	*p*
1 (TRA)	Regression	1737.296	1	1737.296	11.434	.002(a) *
	Residual	6229.774	41	151.946		
	Total	7967.070	42			
2 (TPB)	Regression	2415.675	2	1207.837	8.703	.001(b) *
	Residual	5551.395	40	138.785		
	Total	7967.070	42			

a Predictors: (Constant), Intention. b Dependent Variable: Intention, perceived behavioural control. c Dependent Variable: Behaviour. * Significant (p<.05).

Table 8.16 - Coefficients(a) (district officers' behaviour).

		Unstandardized Coefficients		Standardized Coefficients	t	*p*
Model		B	Std. Error	Beta		
1 (TRA)	(Constant)	21.940	9.464		2.318	.025 *
	Intention	5.309	1.570	.467	3.381	.002 *
2 (TPB)	(Constant)	18.529	9.175		2.019	.050 *
	Intention	2.489	1.970	.219	1.264	.214 **
	Perceived behavioural control	4.252	1.923	.383	2.211	.033 *

a Dependent Variable: Behaviour.
* Significant (p<.05).
* Not significant (p>.05).

Table 8.14 also shows that, intention and perceived behavioural control together explained 26.8% of the variance of district officers' support of the uptake of ICT in their schools (see Model 2 "TPB"). Table 8.16 shows the standardised coefficients for each variable. As shown, perceived behavioural control was a significant predictor of behaviour (*beta*=.383, *p*=.033). Intention, by contrast, made a small and non significant contribution (*p*=.214). Therefore, district officers' behaviour was predicted significantly by intention in the TRA model and only by perceived behavioural control in the TPB model.

8.3.3 Prediction of school counsellors' intention and behaviour

The Tables 8.17, 8.18 and 8.19 below show the results of the hierarchical regression analyses for school counsellors' intention to support the uptake of ICT in their schools.

The results of Step 1 in Table 8.17 show that school counsellors' intention to support the uptake of ICT in their schools was predicted significantly by the attitude toward behaviour and the subjective norm. More specifically, these two independent variables explained 22.7% of the variance of school counsellors' intention. Table 8.19 shows that

the biggest predictor was the attitude toward behaviour (*beta*=.352, *p*=.012) and the second biggest was the subjective norm (*beta*=.288, *p*=.038).

Table 8.17 - Model Summary (school counsellors' intention).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 "TRA"	.510(a)	.260	.227	.984
2 "TPB"	.576(b)	.332	.285	.947

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour and perceived behavioural control.

Table 8.18 - ANOVA(c) (school counsellors' intention).

Model		Sum of Squares	df	Mean Square	F	*p*
1 "TRA"	Regression	15.016	2	7.508	7.747	.001(a) *
	Residual	42.644	44	.969		
	Total	57.660	46			
2 "TPB"	Regression	19.125	3	6.375	7.114	.001(b) *
	Residual	38.535	43	.896		
	Total	57.660	46			

a Predictors: (Constant), Subjective norm, Attitude toward behaviour.
b Predictors: (Constant), Subjective norm, Attitude toward behaviour, and perceived behavioural control.
c Dependent Variable: Intention.

Table 8.19 - Coefficients(a) (school counsellors' intention).

		Unstandardized Coefficients		Standardized Coefficients	t	*p*
Model		*B*	*Std. Error*	*Beta*		
1 "TRA"	(Constant)	-.322	1.591		-.202	.841 **
	Attitude toward behaviour	.572	.219	.352	2.617	.012 *
	Subjective norm	.421	.197	.288	2.141	.038 *
2 "TPB"	(Constant)	3.084E-02	1.539		.020	.984 **
	Attitude toward behaviour	.491	.214	.302	2.298	.026 *
	Subjective norm	.257	.204	.176	1.260	.215 **
	Perceived behavioural control	.256	.119	.299	2.141	.038 *

a Dependent Variable: Intention.
* Significant (p<.05).
* Not significant (p>.05).

At the second step of the regression analysis (see Model 2 "TPB" in Table 8.17), the addition of perceived behavioural control increased the predictive power of the regression model to 28.5%. Table 8.19 shows the beta weights for each of the three variables of the TPB. As can be seen from this table attitude toward behaviour (*beta*=.302, *p*=.026) was the most important variable in the prediction of school

counsellors' intention, followed by perceived behavioural control (*beta*=.299, *p*=.038). However, subjective norm was not a significant predictor (*p*=.215).

The results above show that attitude towards behaviour, the variable common to TRA and TPB models, predicted school counsellors' intention. However, subjective norm was a significant predictor in the TRA model while in the TPB model it was not. In addition, the perceived behavioural control was a significant predictor and accounted for an additional 5.8% of the variance in school counsellors' intention to support the uptake of ICT in their schools.

As we have seen in Table 8.4 (see Section 8.2) school counsellors' intention was not correlated with behaviour. Therefore, intention was excluded from the regression analysis. Behaviour was regressed only on the perceived behavioural control. Tables 8.20, 8.21 and 8.22 show the results of the regression analysis for school counsellors' behaviour (support the uptake). Inspection of the "Adjuster R Square" column in Table 8.20 shows that the perceived behavioural control predicted 6.7% of the variance of school counsellors' support of the uptake of ICT in their schools. Table 8.22 shows that the perceived behavioural control was a significant predictor of behaviour (*beta*=.296, *p*=.043).

Table 8.20 - Model Summary (school counsellors' behaviour).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.296(a)	.088	.067	12.652

a Predictors: (Constant), Intention.

Table 8.21 - ANOVA(b) (school counsellors' behaviour).

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	691.396	1	691.396	4.319	.043(a) *
	Residual	7203.711	45	160.082		
	Total	7895.106	46			

a Predictors: (Constant), perceived behavioural control.
b Dependent Variable: Behaviour.
* Significant (p<.05).

Table 8.22 - Coefficients(a) (school counsellors' behaviour).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	41.882	6.862		6.104	.000 *
	Intention	2.961	1.425	.296	2.078	.043 *

a Dependent Variable: Behaviour.
* Significant (p<.05).

In conclusion, the results discussed above of the hierarchical regression analyses of the TRA and TPB model show that both models explained a significant proportion of variance of the head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools. The results also show that inclusion of the perceived behavioural control in the TPB enhanced the prediction of their intention and behaviour to support the uptake of ICT. These results are discussed in detail in Section 8.5.

The following three sections presents and examines head teachers', district officers' and school counsellors' behavioural, normative and control beliefs about the support of the uptake of ICT in their schools.

8.4 HEAD TEACHERS', DISTRICT OFFICERS' AND SCHOOL COUNSELLORS' BELIEFS

One of the objectives of this study was to identify and to measure the behavioural, normative and control beliefs of head teachers, district officers and school counsellors about the support of the uptake of ICT in their schools. As we have seen in Chapter 4 (see Section 4.5.5.2), in order to identify these beliefs a pilot study was conducted. The results of the pilot study revealed 36 behavioural, 12 normative and 20 control beliefs. For each of these beliefs two items were designed in the main study (see Chapter 4, Section 4.6.2.2.7). The pair items of each behavioural, normative and control belief was multiplied and their products were summed in order to produce the belief-based attitudes, belief-based subjective norm and belief-based perceived behavioural control respectively (see Chapter 4, Section 4.7.6).

Then, these summed products were correlated with the corresponding direct measures of attitude, subjective norm and perceived behavioural control (see Tables 8.2, 8.3 and 8.4 in Section 8.2). These correlations were performed in order to examine whether the summed products correlated with the direct measures of the TPB. According to Ajzen (2002), any strong correlation between the summed beliefs and the corresponding direct measure, indicates that the behavioural, normative and control beliefs were identified well in the pilot study and measured properly in the main study.

As we have seen in Table 8.2 (see Section 8.2), head teachers' summed products of behavioural, normative and control beliefs were correlated significantly with the

corresponding direct measures of attitude toward behaviour, subjective norm and perceived behavioural control respectively. Similarly, Table 8.3 showed that district officers' behavioural and normative beliefs were correlated significantly with the direct measures of attitude and subjective norm. In addition, Table 8.4 showed that school counsellors' behavioural beliefs were correlated with the attitude toward behaviour. Therefore, these correlations indicate that these beliefs were measured properly in the main study.

As we have seen in Tables 8.3 and 8.4, district officers' and school counsellors' control beliefs did not correlate with the direct measure of perceived behavioural control. Furthermore, Table 8.4 also showed that school counsellors normative beliefs did not correlate with subjective norm. These non significant correlations, indicate that district officers' control beliefs and school counsellors' control and normative beliefs may not have been identified well in the pilot study.

8.4.1 Head teachers', district officers and school counsellors' behavioural beliefs

As we have seen in Chapter 4 (see Section 4.6.1.2.7) for behavioural beliefs, head teachers, district officers and school counsellors were asked to indicate their agreement with 36 outcomes of their support of ICT in their schools (behavioural belief strength) and their evaluation of these outcomes (outcome evaluation)[1]. For each belief and outcome evaluation item a mean (M) and standard deviation (SD) was calculated[2]. Then, the educators' responses to each belief strength item and outcome evaluation item were multiplied together and the summed products were correlated with intention and behaviour.

The following three tables (see Tables 8.23, 8.24 and 8.25) show the results of the analysis of head teachers', district officers' and school counsellors' behavioural beliefs about their support of the uptake of ICT in their schools. Column "A" shows the 36 behavioural beliefs. Column "B" in each table shows the means (M) and standard deviations (SD) of the belief strength and column "B" the means (M) and standard

[1] An example item of behavioural belief strength was: "supporting the uptake of ICT in my school(s) during the next three months will encrich my pupils' knowledge: extremely unlikely (1) – extremely likely (7)". An example item of outcome evaluation was: "Enriching my pupils' knowledge is: extremely bad (1) – extremely good (7)" (see Chapter 4, Section 4.6.2.2.7).

[2] Any mean value higher than 5 in behavioural, normative and control beliefs of this chapter indicates that the majority of respondents agreed or strongly agreed with the statement.

deviations (SD) of outcome evaluation of the behavioural beliefs. Possible scores on the belief strength and the outcome evaluation item range from a minimum score of 1 to a maximum score of 7. A high mean score (e.g. a mean score of 6 or 7) in belief strength column indicates that head teachers, district officers and school counsellors had a very positive belief about the consequences of supporting the uptake of ICT in their schools. In addition, a higher mean score (e.g. a mean score of 6 or 7) in the column of outcome evaluation indicates that respondents evaluated the consequences of supporting the uptake of ICT positively[1]. Finally, column "D" shows the correlation of each behavioural belief with intention and behaviour to support the uptake of ICT in schools.

Examination of the means in column "B" and "C" of the following three tables show that the majority of beliefs strength items and outcome evaluation items had mean scores over 5.50. This indicates that both groups had positive attitudes about the outcomes of supporting the uptake of ICT in their schools and also evaluated these outcomes very positive. On average, all groups believed that their support of ICT in their schools would have many advantages for pupils, teachers and their schools. For instance, they believed that some of the advantages of the support of ICT in their schools will be the following: a) "make the lessons more fun for the pupils", b) "increase pupils' interest in learning", c) "help teachers to improve their ICT expertise", d) "improve teachers' productivity" and e) "help school's better organisation".

On the other hand, head teachers, district officers and school counsellors rated relatively low specific beliefs that related to time factors. These were: "make preparation for lesson more time-consuming for teachers", and "save teachers more time and work". In addition, they reported that the support of the uptake of ICT in their schools will "cause conflicts among teachers", and cause teachers stress. Furthermore, the disadvantages for the school were the following: "create problems in the current curriculum" and "create problems in the school timetable". Therefore, these findings show that head teachers, district officers and school counsellors will support the uptake of ICT in their schools if their teachers have sufficient time to use ICT in their teaching.

[1] As we have seen in Chapter 4 (see Section 4.6.1.2.7), the responses for the negative items (8, 18, 19, 20, 23, 24, 27, 29, 30 and 36) in these tables were reversed scored.

*Table 8.23 - Means (M) and standard deviations (SD) for behavioural belief strength and outcome evaluation, and correlations of belief-evaluation product with **head teachers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Supporting the uptake of Information Communication Technology in my school during the next three months will...		**Belief strength (b)**		**Outcome evaluation (e)**		**Correlation**	
		M	***SD***	***M***	***SD***	***b,e,* with intention**	***b,e,* with behaviour**
1	Enrich pupils' knowledge.	6.60	0.685	6.57	0.962	0.349**	0.277*
2	Help the weak pupils improve.	6.11	1.439	6.89	0.358	0.291*	0.261*
3	Help pupils learn more easily.	6.29	0.863	6.89	0.358	0.301*	0.307**
4	Make the lessons more fun for the pupils.	6.67	0.605	6.86	0.387	0.276*	0.388*
5	Increase pupils' interest in learning.	6.67	0.605	6.90	0.298	0.314**	0.360**
6	Stimulate creativity in pupils.	6.29	0.971	6.89	0.316	0.343**	0.242*
7	Significantly improve the overall quality of my pupils' education.	6.32	0.947	6.96	0.201	0.312**	0.401**
8	Be a waste of time for pupils. ♠	6.50	1.113	6.60	0.914	0.152	0.159
9	Help pupils work with one another.	6.17	1.245	6.78	0.587	0.284*	0.286*
10	Help pupils to find a job easier in future.	6.33	0.979	6.76	0.639	0.035	0.171
11	Help teachers to improve their ICT expertise.	6.65	0.585	6.78	0.537	0.287*	0.157
12	Allow teachers greater access to a computer for personal and professional use.	6.57	0.709	6.78	0.562	0.349**	0.222
13	Make lessons more interesting for teachers.	6.47	0.839	6.81	0.521	0.159	0.173
14	Make the lessons more enjoyable for teachers.	6.49	0.839	6.67	0.856	0.155	0.253*
15	Make lessons more diverse.	6.40	0.725	6.79	0.529	0.321**	0.343**
16	Make preparation for lessons easier for teachers.	5.58	1.790	6.81	0.521	0.166	0.132
17	Help teachers organise better their lessons.	6.19	1.043	6.82	0.484	0.364**	0.264*
18	Make preparation for lessons more time-consuming for teachers. ♠	4.89	1.755	6.01	1.348	-0.035	-0.016
19	Restrict the content of lessons. ♠	5.75	1.518	5.54	1.823	0.255*	0.336**
20	Make it more difficult for teachers to control the class. ♠	5.68	1.743	5.89	1.516	0.117	0.067
21	Give teachers more prestige.	5.85	1.421	6.68	0.784	0.271*	0.265*
22	Improve teachers' productivity.	6.21	1.087	6.83	0.557	0.206	0.157
23	Cause conflicts among teachers. ♠	5.71	1.803	6.85	0.685	0.053	0.127
24	Restrict teachers' role. ♠	6.14	1.513	5.93	1.495	0.041	0.209
25	Help teachers communicate with colleagues in other schools.	6.44	1.047	6.82	0.775	0.404**	0.308**
26	Save teachers more time and work.	3.74	2.438	5.11	2.179	0.020	0.041
27	Cause teachers stress. ♠	4.33	1.831	6.42	1.084	-0.131	-0.037
28	Improve the communication among the pupils and teachers.	6.00	1.187	6.90	0.381	0.361**	0.393**
29	Create problems in the current curriculum. ♠	4.85	2.067	6.06	1.243	-0.069	0.202
30	Create problems in the school timetable. ♠	4.89	1.968	6.08	1.184	-0.007	0.276*
31	Support the communication of my school with other schools in Greece and abroad.	6.53	0.839	6.85	0.399	0.576**	0.288*
32	Help school's better organisation.	6.50	0.856	6.81	0.685	0.485**	0.256*
33	Help the school's personnel to cooperate.	5.79	1.266	6.94	0.231	0.348**	0.395**
34	Help my school to implement other innovations.	6.57	0.853	6.90	0.342	0.550**	0.345**
35	Give me more prestige.	5.81	1.544	6.40	1.070	0.220	0.227
36	Cause me stress. ♠	5.21	1.971	6.54	0.730	-0.079	0.081

Notes: ♠ *Items for which the scoring was reversed Behavioural belief strength and outcome evaluation scored from 1 to 7.*
b,e, each Behavioural Belief (BB) was multiplied with Outcome Evaluation(OE) (BB x OE) (see Chapter 4, Section 4.7.4.1)
** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

*Table 8.24 - Means (M) and standard deviations (SD) for behavioural belief strength and outcome evaluation, and correlations of belief - evaluation product with **district officers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Supporting the uptake of Information Communication Technology in my schools during the next three months will...		**Belief strength (b)**		**Outcome evaluation (e)**		**Correlation**	
		M	***SD***	***M***	***SD***	***b,e,*** with intention	***b,e,*** with behaviour
1	Enrich pupils' knowledge.	6.35	1.173	6.74	0.581	0.653**	0.416**
2	Help the weak pupils improve.	6.05	1.253	6.42	0.852	0.619**	0.427**
3	Help pupils learn more easily.	6.05	1.308	6.63	0.725	0.668**	0.533**
4	Make the lessons more fun for the pupils.	6.51	0.883	6.81	0.450	0.535**	0.440**
5	Increase pupils' interest in learning.	6.44	0.825	6.81	0.394	0.461**	0.481**
6	Stimulate creativity in pupils.	6.30	0.939	6.77	0.480	0.462**	0.492**
7	Significantly improve the overall quality of my pupils' education.	6.09	0.947	6.53	1.141	0.233	0.271
8	Be a waste of time for pupils. ♠	6.51	0.910	6.30	1.389	0.071	0.042
9	Help pupils work with one another.	5.42	1.484	6.60	0.760	0.360*	0.199
10	Help pupils to find a job easier in future.	6.16	1.045	6.60	0.728	0.247	0.194
11	Help teachers to improve their ICT expertise.	6.35	1.044	6.70	0.638	0.207	0.276
12	Allow teachers greater access to a computer for personal and professional use.	6.00	1.773	6.77	0.480	0.174	0.159
13	Make lessons more interesting for teachers.	6.02	0.988	6.60	0.903	0.411**	0.326*
14	Make the lessons more enjoyable for teachers.	5.86	1.125	6.26	1.115	0.343*	0.136
15	Make lessons more diverse.	6.26	0.928	6.74	0.581	0.455**	0.345*
16	Make preparation for lessons easier for teachers.	5.81	1.258	6.56	0.825	0.254	0.254
17	Help teachers organise better their lessons.	6.19	0.906	6.67	6.80	0.433**	0.428**
18	Make preparation for lessons more time–consuming for teachers. ♠	4.05	2.093	5.26	1.840	0.083	0.031
19	Restrict the content of lessons. ♠	5.33	1.886	5.67	1.714	0.402**	0.228
20	Make it more difficult for teachers to control the class. ♠	5.35	1.689	5.81	1.607	0.450**	0.058
21	Give teachers more prestige.	5.40	1.561	6.49	0.910	0.313*	0.378*
22	Improve teachers' productivity.	5.65	1.289	6.74	0.581	0.181	0.333*
23	Cause conflicts among teachers. ♠	4.81	1.955	6.77	0.841	0.055	0.158
24	Restrict teachers' role. ♠	5.56	1.777	5.49	1.653	0.269	0.055
25	Help teachers communicate with colleagues in other schools.	6.19	1.139	6.79	0.466	0.352*	0.310*
26	Save teachers more time and work.	4.14	2.167	5.28	1.681	0.104	0.090
27	Cause teachers stress. ♠	4.98	1.845	6.00	1.464	0.242	0.155
28	Improve the communication among the pupils and teachers.	5.28	1.667	6.79	0.466	0.351*	0.268
29	Create problems in the current curriculum. ♠	4.95	1.851	5.51	1.437	0.011	0.099
30	Create problems in the schools timetable. ♠	4.79	1.872	5.65	1.307	-0.123	0.099
31	Support the communication of my schools with other schools in Greece and abroad.	6.30	1.013	6.65	0.752	0.206	0.366*
32	Help schools' better organisation.	6.19	1.160	6.70	0.708	0.216	0.339*
33	Help the schools' personnel to cooperate.	5.05	1.511	6.77	0.571	0.103	0.301*
34	Help my schools to implement other innovations.	6.23	0.895	6.67	0.778	0.244	0.312*
35	Give me more prestige.	5.58	1.484	6.51	0.856	0.275	0.260
36	Cause me stress. ♠	5.51	1.470	6.49	0.910	0.160	-0.106

Notes: ♠ *Items for which the scoring was reversed Behavioural belief strength and outcome evaluation scored from 1 to 7*
b,e, each Behavioural Belief (BB) was multiplied with Outcome Evaluation(OE) (BB x OE) (see Chapter 4, Section 4.7.4.1)
** Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).*

Table 8.25 - Means (M) and standard deviations (SD) for behavioural belief strength and outcome evaluation, and correlations of belief - evaluation product with ***school counsellors'*** *intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Supporting the uptake of Information Communication Technology in my schools during the next three months will...		**Belief strength (b)**		**Outcome evaluation (e)**		**Correlation**	
		M	***SD***	***M***	***SD***	***b,e,*** with intention	***b,e,*** with behaviour
1	Enrich pupils' knowledge.	6.06	1.150	6.38	1.054	0.412**	0.104
2	Help the weak pupils improve.	5.55	1.411	6.66	0.635	0.430**	0.172
3	Help pupils learn more easily.	5.94	1.131	6.64	0.673	0.319*	0.118
4	Make the lessons more fun for the pupils.	6.47	0.718	6.68	0.556	0.458**	0.174
5	Increase pupils' interest in learning.	6.49	0.547	6.72	0.452	0.444**	0.229
6	Stimulate creativity in pupils.	6.15	0.978	6.74	0.441	0.411**	0.215
7	Significantly improve the overall quality of my pupils' education.	5.83	1.167	6.64	0.568	0.196	0.119
8	Be a waste of time for pupils. ♠	6.28	1.174	6.32	1 321	0.031	-0.019
9	Help pupils work with one another.	5.47	1.427	6.49	0.953	0.041	0.096
10	Help pupils to find a job easier in future.	6.09	1.213	6.64	0.673	0.371*	0.124
11	Help teachers to improve their ICT expertise.	6.45	0.802	6.79	0.508	0.319*	0.382**
12	Allow teachers greater access to a computer for personal and professional use.	6.45	0.775	6.77	0.476	0.210	0.356*
13	Make lessons more interesting for teachers.	6.21	0.907	6.79	0.508	0.221	0.323*
14	Make the lessons more enjoyable for teachers.	6.11	1.068	6.51	0.804	0.117	0.129
15	Make lessons more diverse.	6.34	0.815	6.79	0.414	0.289*	0.290*
16	Make preparation for lessons easier for teachers.	5.34	1.508	6.64	0.673	0.285	0.173
17	Help teachers organise better their lessons.	6.06	0.919	6.64	0.640	0.423**	0.195
18	Make preparation for lessons more time–consuming for teachers. ♠	4.36	1.961	5.51	1.816	-0.043	-0.016
19	Restrict the content of lessons. ♠	5.38	1.739	5.04	2.085	0.262	0.103
20	Make it more difficult for teachers to control the class. ♠	5.49	1.627	6.09	1.282	0.374**	0.158
21	Give teachers more prestige.	5.89	1.448	6.49	1.019	0.014	0.303*
22	Improve teachers' productivity.	6.00	1.103	6.68	0.594	0.049	0.284
23	Cause conflicts among teachers. ♠	5.49	1.828	6.40	1.455	-0.130	-0.050
24	Restrict teachers' role. ♠	5.38	2.091	5.43	1.964	0.038	-0.092
25	Help teachers communicate with colleagues in other schools.	6.30	1.334	6.38	1.328	0.077	0.239
26	Save teachers more time and work.	4.09	2 263	5.15	2.197	0.250	0.126
27	Cause teachers stress. ♠	4.49	1.743	6.30	1.178	0.235	0.133
28	Improve the communication among the pupils and teachers.	5.51	1.443	6.57	0.994	0.089	0.236
29	Create problems in the current curriculum. ♠	4.77	2.035	5.66	1.748	-0.024	0.175
30	Create problems in the schools timetable. ♠	3.53	1.998	5.98	1.327	-0.008	-0.214
31	Support the communication of my schools with other schools in Greece and abroad.	6.26	0.820	6.55	0.996	0.222	0.203
32	Help schools' better organisation.	6.30	0.858	6.68	0.629	0.293*	0.307*
33	Help the schools' personnel to cooperate.	5.57	1.395	6.74	0.441	0.197	0.160
34	Help my schools to implement other innovations.	6.28	0.902	6.77	0.520	0.100	0.120
35	Give me more prestige	5.55	1.558	6.62	0.644	-0.050	0.222
36	Cause me stress. ♠	5.15	1.601	6.26	1.310	0.271	-0.001

Notes. ♠ *Items for which the scoring was reversed Behavioural belief strength and outcome evaluation scored from 1 to 7.*
b,e, each Behavioural Belief (BB) was multiplied with Outcome Evaluation(OE) (BB × OE) (see Chapter 4, Section 4.7.4.1)
** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed)*

Column "C" in Table 8.23 shows that the majority of behavioural beliefs (20 out of 36) of head teachers correlated significantly with their intention and support of the uptake of ICT in their schools. Similarly, 16 out of 36 behavioural beliefs of district officers correlated significantly with their intention and behaviour. In addition, 12 out of 36 beliefs of school counsellors correlated with their intention and six with their behaviour. Many of the correlated beliefs with head teachers', and district officers' intention and behaviour as well as school counsellors' intention correlated to outcomes for pupils. For example, some of the correlated beliefs included "enrich pupils' knowledge", "help the weak pupils improve", "help pupils learn more easily", "make the lessons more fun for the pupils", "increase pupils' interest in learning" and "stimulate creativity in pupils". However, school counsellors' behaviour correlated with the beliefs that related to teachers and school. For example these correlated beliefs included "help teachers to improve their ICT expertise", "allow teachers greater access to a computer for personal and professional use", "make lessons more interesting for teachers" and "help schools' better organisation".

Therefore, the behavioural beliefs that correlated with the intention and behaviour in the above three tables means that those head teachers, district officers and school counsellors who have very positive beliefs regarding the support of the uptake of ICT tend to have a stronger intention and behaviour to support it in their schools.

8.4.2 Head teachers', district officers' and school counsellors' normative beliefs

Head teachers, district officers and school counsellors were asked to indicate the extent to which 12 different persons/organisations would approve or disapprove of them to support the uptake of ICT in their schools (belief strength) and the extent to which they were motivated to comply with these persons or groups (motivation to comply)[1]. A mean score and standard deviation was calculated for each belief strength and motivation to comply item. Then, each normative belief item score was multiplied by the corresponding motivation to comply item score. The products of these scores were correlated with intention and behaviour to support the uptake of ICT.

[1] An example item of normative belief strength was: "The Ministry of Education thinks that: I should (7)-I should not (1) support the uptake of ICT in my school(s) during the next three months". An example item of motivation to comply was: "Generally speaking, how much do you want to do what the Ministry of Education thinks you should do? not at all (1)-very much (7)" (see Chapter 4, Section 4.6.2.2.8).

The following three tables (Tables 8.26, 8.27 and 8.28) show the individuals and the groups who approved or disapproved head teachers, district officers and school counsellors to support the uptake of ICT in their schools. More specifically, column "B" and "C" in each table shows the mean and standard deviation for belief strength and motivation to comply referent respectively. Column "D" shows the correlation of each normative belief with intention and behaviour.

Inspection of the results in the belief strength column (see column "B") in the following three tables shows that head teachers, district officers and school counsellors rated all referents very high. This means that they felt a pressure to support the uptake of ICT in their schools from all 12 referents. The strongest influence for head teachers was from "private computer companies" (M=6.74, SD=0.769), followed by their pupils (M=6.71, SD=0.615), "parents association" (M=6.69, SD=0.620) and "universities" (M=6.56, SD=0.991). The strongest social influence to support the uptake of ICT for district officers and school counsellors was from "The Pedagogical Institute (of the Ministry of Education)", "universities", "the Ministry of Education" and "private computer companies".

An inspection of the motivation to comply column (see column "C") indicates that head teachers were more motivated to comply with "the Pedagogical Institute" (M=6.32, SD=1.019), "their pupils" (M=6.29, SD=0.941), district officer (M=6.11, SD=1.120), and teachers (M=6.10, SD=1.064). In addition, this column shows that district officers and school counsellors were more motivated to comply with the Pedagogical Institute and the Ministry of Education. Finally, this column also shows that both groups were less motivated to comply with "private computer companies".

Table 8.26 (see column "D") shows that "the Ministry of Education" (r=+.336, p<0.01), was positively correlated to head teachers' intention, followed by "The Pedagogical Institute (of the Ministry of Education)" (r=+.290, p<0.05), "my school counsellor" (r=+.295, p<0.05), "my district officer" (r=+.288, p<0.05), "my teachers" (r=+.251, p<0.05), "local authorities (Municipality, Prefecture)" (r=+.249, p<0.05), and "head teachers of other schools" (r=+.246, p<0.05). Table 8.27 (see column "D") also shows that only the subjective norms regarding "my school counsellors of my district" (r=+.437, p<0.01), "the Ministry of Education" (r=+.462, p<0.01) and "Greek primary teachers' federation" (r=+.333, p<0.05) correlated with district officers' intention.

Finally Table 8.28 (see column "D") shows that school counsellors' intention correlated significantly with the perceived normative pressure from four referents. These were: "my district officer of my district" (r=+.364, p<0.05), "my teachers" (r=+.362, p<0.05), "the Ministry of Education" (r=+.368, p<0.05) and "local authorities (Municipality, Prefecture)" (r=+.382, p<0.01).

*Table 8.26 - Means (M) and standard deviations (SD) for normative belief strength and motivation to comply, and correlations of belief - motivation product with **head teachers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Normative referent		**Belief strength (n)**		**Motivation to comply (m)**		**Correlation**	
(Persons/organisation perceived to influence head teachers' support of the uptake of ICT)		***M***	***SD***	***M***	***SD***	***n,m***, with intention	***n,m***, with behaviour
1	My school counsellor.	6.44	1.019	6.08	1.297	0.295*	0.261*
2	My district officer.	6.32	1.161	6.11	1.120	0.288*	0.339**
3	Parent's association	6.69	0.620	5.89	1.284	0.202	0.176
4	My pupils.	6.71	0.615	6.29	0.941	0.207	0.251*
5	Head teachers of other schools.	5.74	1.278	5.04	1.772	0.246*	0.124
6	My teachers.	6.22	0.938	6.10	1.064	0.251*	0.269*
7	The Ministry of Education.	6.19	1.421	6.04	1.227	0.336**	0.168
8	Universities.	6.56	0.991	5.99	1.358	0.149	0.256*
9	Private computer companies.	6.74	0.769	5.31	1.741	0.070	0.166
10	Local authorities (Municipality, Prefecture).	5.90	1.602	5.79	1.342	0.249*	0.222
11	Greek primary teachers' federation.	5.97	1.627	5.75	1.726	0.148	0.134
12	The Pedagogical Institute (of the Ministry of Education).	6.39	1.262	6.32	1.019	0.290*	0.146

Notes: Normative belief (NB) strength and motivation to comply (MC) scored from 1 to 7.
n,m, each normative belief was multiplied with each motivation to comply (NB × MC) (see Chapter 4, Section 4.6.2.2.8).
*** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).*

Column "D" in Table 8.26, shows that five of the 12 persons/organisations of head teachers, were significantly correlated with their support of the uptake of ICT in their schools. These referents were: "my school counsellor" (r=+.261, p<0.05), "my district officer" (r=+.339, p<0.01), "my pupils" (r=+.251, p<0.05), "my teachers" (r=+.269, p<0.05), and "universities" (r=+.256, p<0.05). Similarly, Table 8.27 shows that eight of the 12 persons/organisations of district officers were significantly correlated with their behaviour. The most strongly correlated persons included "my school counsellors of my district" (r=+.543, p<0.01), "my teachers" (r=+.481, p<0.01), and "my head teachers" (r=+.394, p<0.01). In addition, Table 8.28 shows that school counsellors' behaviour was correlated significantly with five persons/organisations. These were: "local authorities (Municipality, Prefecture)" (r=+.364, p=), "Private computer companies" (r=+.364, p<0.05), "universities" (r=+.306, p<0.05) "my head teachers" (r=+.293, p<0.05), and "the Ministry of Education" (r=+.291, p<0.05).

*Table 8.27 - Means (M) and standard deviations (SD) for normative belief strength and motivation to comply, and correlations of belief - motivation product with **district officers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Normative referent		**Belief strength (n)**		**Motivation to comply (m)**		**Correlation**	
(Persons/organisation perceived to influence district officers' support of the uptake of ICT)		***M***	***SD***	***M***	***SD***	***n,m,*** with intention	***n,m,*** with behaviour
1	My school counsellor(s) of my district.	6.37	0.817	6.19	0.906	0.437**	0.543**
2	The district officers of other districts.	5.95	1.362	5.40	1.466	0.294	0.344*
3	Parents' association.	6.49	0.631	5.86	1.037	0.177	0.339*
4	My pupils.	6.37	0.725	6.02	0.886	0.266	0.360*
5	My head teachers.	5.91	0.811	5.86	0.833	0.245	0.394**
6	My teachers.	5.88	0.956	5.79	0.940	0.301	0.481**
7	The Ministry of Education.	6.65	0.686	6.51	0.703	0.462**	0.314**
8	Universities.	6.79	0.412	6.40	0.903	0.212	0.152
9	Private computer companies.	6.63	0.952	4.60	1.978	-0.060	0.202
10	Local authorities (Municipality, Prefecture).	5.79	1.407	5.95	0.950	0.288	0.381*
11	Greek primary teachers' federation.	6.26	1.071	6.09	0.868	0.333*	0.246
12	The Pedagogical Institute (of the Ministry of Education).	6.86	0.351	6.72	0.591	0.287	0.156

Notes: Normative belief (NB) strength and motivation to comply (MC) scored from 1 to 7.
n,m, each normative belief was multiplied with each motivation to comply (NB × MC) (see Chapter 4, Section 4.6.2.2 8)
*** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0 05 level (2-tailed)*

*Table 8.28 - Means (M) and standard deviations (SD) for normative belief strength and motivation to comply, and correlations of belief - motivation product with **school counsellors'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Normative referent		**Belief strength (n)**		**Motivation to comply (m)**		**Correlation**	
(Persons/organisation perceived to influence school counsellors' support of the uptake of ICT)		**M**	**SD**	**SD**	**M**	***n,m,*** with intention	***n,m,*** with behaviour
1	My district officer of my district.	6.17	1.185	5.85	1.000	0.364*	0.278
2	The school counsellors of other districts.	6.19	0.825	5.49	1.081	0.114	0.186
3	Parents' association	6.09	1.039	5.30	1.121	0.104	0.252
4	My pupils.	5.98	1.189	5.51	0.953	0.265	0 184
5	My head teachers.	5.70	1.178	5.49	0.804	0.258	0.293*
6	My teachers.	5.53	1.213	5.47	0.776	0.362*	0.282
7	The Ministry of Education.	6.51	0.655	6.04	0.833	0.368*	0.291*
8	Universities.	6.57	0.580	6.00	.860	0.056	0.306*
9	Private computer companies.	6.64	0.568	4.23	1.832	-0.187	0.344*
10	Local authorities (Municipality, Prefecture).	5.43	1 229	5.09	1.195	0.382**	0.374**
11	Greek primary teachers' federation.	6.21	0.806	5.68	1.065	0.149	0.197
12	The Pedagogical Institute (of the Ministry of Education).	6.74	0.441	6.53	0.687	0.227	0.278

Notes. Normative belief (NB) strength and motivation to comply (MC) scored from 1 to 7.
n,m, each normative belief was multiplied with each motivation to comply (NB × MC) (see Chapter 4, Section 4 6 2 2.8)
*** Correlation is significant at the 0 01 level (2-tailed). * Correlation is significant at the 0 05 level (2-tailed).*

These positive correlations indicate that as head teachers', district officers' and school counsellors' perceived normative pressure from the 12 persons/organisations increases so does their intention and behaviour to support the uptake of ICT in their schools.

8.4.3 Head teachers', district officers' and school counsellors' control beliefs

The 20 control beliefs identified in the pilot study and measured in the main study can be seen in Table 8.29 for head teachers, Table 8.30 for district officers and Table 8.31 for school counsellors. Columns "B and "C" of these tables show the mean (*M*) and standard deviation (*S.D.*) of each control belief strength item and control belief power item[1]. The correlation of each control belief with intention and behaviour is shown in the last column of these tables, in column "D".

Generally, head teachers, district officers and school counsellors scored some of the control belief strength items low. This means that they perceived that specific control factors would not be available to enable them to support the uptake of ICT in their schools. Among these factors included: "adequate financial support for teachers and me", "a small number of pupils in each class", and "enough computer time for each class".

On the other hand, column "B" in the following three tables shows that head teachers, district officers and school counsellors perceived that specific control factors will be available to enable them to support of the uptake of ICT in their schools. Among the most important factors for head teachers were "My pupils will want to use ICT" (*M*=6.60, *SD*=0.643), "Enough connections to the Internet" (*M*=6.28, *SD*=1.355), "Support will be provided at my school by the parents' association" (*M*=6.01, *SD*=1.144), and "sufficient number of computers and peripherals" (*M*=6.12, *SD*=1.288). In addition, the most important factors for district officers and school counsellors to enable them to support of the uptake of ICT in their schools were "my pupils will want to use ICT", support will be provided by the Pedagogical Institute and Ministry of Education and by parents association.

[1] An example item of control belief strength was: "I expect that sufficient number of computers and peripherals (e.g. printer) will be available at my school(s) during the next three months: strongly disagree (1)-strongly agree (7)". An example item of control belief power was: "The availability of sufficient number of computer and peripherals (e.g. printer) at my school(s) during the next three months would make it: much more difficult (1)-much easier (7) for me to support the uptake of ICT (see Section 4.6.2.2.9).

*Table 8.29 - Means (M) and standard deviations (SD) for control belief strength and power of control factor, and correlations with **head teachers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Control factors to facilitate head teachers' support of the uptake of ICT		**Control belief strength (c)**		**Control belief power (p)**		**Correlation**	
		M	***SD***	***M***	***SD***	cp_i with intention	cp_i with behaviour
1	Sufficient number of computers and peripherals (e.g. printer).	6.12	1.288	6.86	0.421	0.195	0.134
2	Enough software for teaching purposes.	5.93	1.282	6.83	0.444	0.175	0.219
3	Technical assistance for operating and maintaining computers.	5.51	1.520	6.81	0.521	0.206	0.160
4	Adequate financial support for teachers and me.	2.36	1.559	6.72	0.876	0.109	-0.038
5	An appropriate computer room.	6.10	1.406	6.88	0.409	0.144	0.145
6	A small number of pupils in each class.	4.15	2.060	6.78	0.633	-0.044	0.080
7	Enough computer time for each class.	4.85	1.741	6.71	0.795	0.029	0.237*
8	Use of computers will be integrated in the existing prescribed class curriculum.	4.99	2.106	6.64	0.909	0.090	0.331**
9	Enough time for teachers to develop lessons in which computers are used.	4.93	1.799	6.76	0.702	0.028	0.241*
10	Support will be provided by teachers.	5.64	1.523	6.78	0.633	0.097	0.364**
11	Support will be provided at my school by the district officer.	5.67	1.636	6.74	0.671	0.087	0.271*
12	Support will be provided at my school by the school counsellor.	5.78	1.770	6.79	0.604	0.013	0.154
13	Support will be provided at my school by the head teachers of other schools.	3.97	1.768	6.21	1.174	0.184	0.176
14	Support will be provided at my school by the parents' association.	6.01	1.144	6.65	0.966	0.126	0.137
15	Support will be provided by the Ministry of Education.	5.57	1.608	6.78	0.655	0.173	0.086
16	Support will be provided by the Pedagogical Institute.	5.42	1.867	6.78	0.633	0.143	0.224
17	Support will be provided by the local authorities (Municipality, Prefecture).	4.12	1.957	6.72	0.716	0.312**	0.184
18	My pupils will want to use ICT.	6.60	0.643	6.82	0.613	0.180	0.312**
19	Enough connections to the Internet.	6.28	1.355	6.87	0.473	0.063	0.304**
20	Sufficient training opportunities on the pedagogical use of ICT for teachers.	5.24	1.716	6.89	0.461	0.167	0.195

Notes: Control belief and control belief power scored from 1 to 7. $c_i p_i$ Each control belief was multiplied with each control belief power (CB × CP) (see Chapter 4, Section 4.7.6).
** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

Column "C" results of Tables 8.29, 8.30 and 8.31 show that all control beliefs were evaluated very high, which means that head teachers, district officers, and school counsellors believed that all these factors will make their support of the uptake of ICT in their schools much easier. For each control belief, the scores of the control belief item and control belief power item were multiplied and correlated with intention and behaviour. Column "D" in Tables 8.29, 8.30 and 8.31 shows the relationships between various control beliefs and head teachers' district officers' and school counsellors'

intention and behaviour to support the uptake of ICT in their schools. As we have seen in Table 8.2 head teachers' belief based perceived behavioural control was not correlated with their intention. Similarly, in Table 8.4, school counsellors' belief based perceived behavioural control was not correlated with intention and behaviour.

*Table 8.30 - Means (M) and standard deviations (SD) for control belief strength and power of control factor, and correlations with **district officers'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Control factors to facilitate district officers' support of the uptake of ICT		**Control belief strength (c)**		**Control belief power (p)**		**Correlation**	
		M	***SD***	***M***	***SD***	cp, with intention	cp, with behaviour
1	Sufficient number of computers and peripherals (e.g. printer).	5.47	1.297	6.70	0.708	0.322*	0.151
2	Enough software for teaching purposes.	4.70	1.301	6.70	0.773	0.309*	-0.010
3	Technical assistance for operating and maintaining computers.	4.74	1.329	6.88	0.391	0.124	-0.085
4	Adequate financial support for teachers and me.	3.98	1.520	6.79	0.559	-0.026	-0.129
5	An appropriate computer room at schools.	4.67	1.229	6.84	0.433	0.122	-0.136
6	A small number of pupils in each class.	4.65	1.602	6.70	0.887	-0.270	-0.208
7	Enough computer time for each class.	4.44	1.517	6.70	0.741	0.220	-0.075
8	Use of computers will be integrated in the existing prescribed class curriculum.	4.74	1.827	6.14	1.641	0.276	0.286
9	Enough time for teachers to develop lessons in which computers are used.	4.65	1.429	6.07	1.653	0.365*	0.316*
10	Support will be provided by teachers.	5.19	1.097	6.49	1.032	0.99	0.226
11	Support will be provided by the district officers of other districts.	5.35	1.541	6.37	1.092	0.017	0.246
12	Support will be provided by the school counsellors.	5.98	1.371	6.53	1.008	0.066	0.285
13	Support will be provided by the head teachers.	5.91	1.109	6.53	1.008	0.027	0.253
14	Support will be provided by the parents' association.	6.07	1.078	6.49	1.032	0.040	0.198
15	Support will be provided by the Ministry of Education.	6.02	1.144	6.84	0.374	0.233	0.303*
16	Support will be provided by the Pedagogical Institute.	6.12	1.051	6.84	0.374	0.245	0.295
17	Support will be provided by the local authorities (Municipality, Prefecture).	4.72	1.315	6.79	0.412	0.347*	0.156
18	My pupils will want to use ICT.	6.42	0.794	6.77	0.480	0.228	0.436**
19	Enough connections to the Internet.	5.12	1.515	6.72	0.504	0.248	0.129
20	Sufficient training opportunities on the pedagogical use of ICT for teachers.	5.86	1.207	6.84	0.374	0.228	0.333*

Notes: Control belief and control belief power scored from 1 to 7. cp, Each control belief was multiplied with each control belief power (CB × CP) (see Chapter 4, Section 4.7.6).

** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

*Table 8.31 - Means (M) and standard deviations (SD) for control belief strength and power of control factor, and correlations with **school counsellors'** intention and behaviour to support the uptake of ICT in their schools.*

A		B		C		D	
Control factors to facilitate school counsellors' support of the uptake of ICT		**Control belief strength (c)**		**Control belief power (p)**		**Correlation**	
		M	***SD***	***M***	***SD***	$c_i p_i$ with intention	$c_i p_i$ with behaviour
1	Sufficient number of computers and peripherals (e.g. printer).	4.89	1.632	6.45	1.039	0.207	0.102
2	Enough software for teaching purposes.	4.09	1.558	6.45	1.100	0.132	0.146
3	Technical assistance for operating and maintaining computers.	3.72	1.584	6.57	0.827	0.148	0.219
4	Adequate financial support for teachers and me.	2.83	1.711	6.36	1.031	0.030	0.021
5	An appropriate computer room at schools.	4.64	1.538	6.79	0.549	0.183	0.104
6	A small number of pupils in each class.	3.26	1.847	6.47	0.905	0.104	0.046
7	Enough computer time for each class.	3.79	1.601	6.53	0.929	0.087	0.085
8	Use of computers will be integrated in the existing prescribed class curriculum.	4.55	1.692	6.55	0.996	0.121	0.116
9	Enough time for teachers to develop lessons in which computers are used.	4.11	1.402	6.45	1.059	0.067	-0.77
10	Support will be provided by teachers.	5.00	1.588	6.79	0.463	0.226	-0.134
11	Support will be provided by the district officer of my district.	5.49	1.666	6.74	0.607	0.212	-0.154
12	Support will be provided by the school counsellors of other districts.	5.51	1.600	6.74	0.530	0.145	-0.206
13	Support will be provided by the head teachers of my district.	5.70	1.350	6.79	0.463	0.392**	-0.052
14	Support will be provided by the parents' association.	5.60	1.583	6.64	0.845	0.133	-0.074
15	Support will be provided by the Ministry of Education.	5.43	1.598	6.79	0.463	0.161	0.091
16	Support will be provided by the Pedagogical Institute.	5.57	1.485	6.79	0.463	0.003	0.158
17	Support will be provided by the local authorities (Municipality, Prefecture).	4.40	1.896	6.55	0.653	0.120	0.142
18	My pupils will want to use ICT.	5.83	1.307	6.62	0.644	0.310	0.062
19	Enough connections to the Internet.	4.47	1.653	6.60	0.681	0.045	-0.075
20	Sufficient training opportunities on the pedagogical use of ICT for teachers.	5.55	1.653	6.79	0.508	-0.164	0.045

Notes: Control belief and control belief power scored from 1 to 7. $c_i p_i$ Each control belief was multiplied with each control belief power (CB × CP) (see Chapter 4, Section 4.7.6).
** Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

Therefore, as can be seen in column "D" of Tables 8.29 and 8.31 only the control belief "support will be provided by the local authorities (Municipality, Prefecture)" was correlated with head teachers' intention (r=+.312, p<0.01) and only the control belief "support will be provided by the head teachers of my district" was correlated with school counsellors' intention (r=+392, p<0.01).

Table 8.29 shows that six control beliefs were correlated with head teachers' behaviour. The beliefs most strongly correlated with behaviour were: "support will be provided by teachers" (r=+.364, p<0.01), "use of computers will be integrated in the existing prescribed class curriculum" r=+.331, p<0.01), and "my pupils will want to use ICT" r=+.312, p<0.01).

The control beliefs of district officers that correlated with their intention were "sufficient number of computers and peripherals" (r=+.332, p<0.05), "enough software for teaching purposes" (r=+.309, p<0.05), "enough time for teachers to develop lessons in which computers are used" (r=+.365, p<0.05) and "support will be provided by the local authorities (Municipality, Prefecture)" (r=+.347, p<0.05).

Similarly, this column shows that positive correlations were between district officers' behaviour and four control beliefs in the following order of increasing correlation: a) "my pupils will want to use ICT" (r=+.436, p<0.01), b) "sufficient training opportunities on the pedagogical use of ICT for teachers", (r=+.333, p<0.05), "enough time for teachers to develop lesson in which computers are used" (r=+.316, p<0.05), and "support will provided by the ministry of Education" (r=+.303, p<0.05).

8.5 DISCUSSION AND CONCLUSIONS

This chapter examined, within the framework provided by the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB), what factors influenced head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools as well as their actual support. The main conclusions of this chapter are discussed in the following sections.

8.5.1 Head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools

The results of the descriptive analysis showed that most of the 72 head teachers, 43 district officers and 47 school counsellors had relatively positive scores for the TRA and TPB variables. The intention to support the uptake of ICT in their schools was very strong in all three groups. In addition, head teachers, district officers and school counsellors had a positive attitude towards supporting the uptake of ICT. They also felt, according to subjective norm mean score, that most of their important others would approve of this behaviour. Finally, the perceived behavioural control lower mean score,

showed that they thought they had insufficient control over the support of the uptake of ICT.

Pearson correlation results showed that head teachers', district officers' and school counsellors' independent variables of the TRA (i.e. attitude, subjective norm) and TPB (i.e. perceived behavioural control) model were positively correlated with intention. This means that the more favourable the attitude and the subjective norm, and the greater the perceived behavioural control, the stronger is the head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools.

Furthermore, regression analyses showed that some of the variables of the TRA and TPB contributed to the explanation of head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools. In the TRA model, head teachers' intention was significantly influenced only by attitude, whereas district officers' and school counsellors' intention was influenced by attitude and subjective norm. Attitude was the most important predictor in school counsellors and the least important predictor in district officers. Using the TPB model, head teachers' intention was influenced only by perceived behavioural control, whereas district officers' and school counsellors' intention was influenced by attitude and perceived behavioural control. Attitude was the first strongest predictor in district officers' and school counsellors' intention.

These results show that attitude to support the uptake of ICT was the main predictor of head teachers', district officers' and school counsellors' intentions in TRA model. In addition, attitude was a significant predictor of district officers' and school counsellors' intention in the TPB model. The finding that attitudes are important predictors is in agreement with earlier studies in the literature of the TRA and TPB (see Ajzen, 1991). The findings of this study suggest that attitudes play an important role in head teachers', district officers' and school counsellors' intention to engage in supporting the uptake of ICT in their schools. Therefore, in order to promote the use of ICT in Greek schools, the Ministry of Education should reinforce the positive attitudes of those who are already involved in supporting the uptake and to change the attitudes of those who view supporting the uptake of ICT less positively.

Another important finding is that perceived behavioural control was an important predictor in all three groups. This suggests that having a perception of control of the

appropriate resources and opportunities to support the uptake of ICT contributes towards strong intentions. In addition, the analysis of the findings in the TPB model showed that the perceived behavioural control explained an additional percentage of the variance of intentions to support the uptake of ICT. Similar findings have also been found in other education studies (see Chapter 3), as well as in other non-education studies (see Armitage and Conner, 2001 and Godin and Kok, 1996).

The results of this study also showed that subjective norm in the TRA model was an important factor, in district officers' and school counsellors' intention to support the uptake. Most specifically, subjective norm was found to be more important for district officers' intention than for school counsellors. This suggests that a favourable opinion of significant others influences the intention to support the uptake of ICT. However, subjective norm was not a significant predictor in head teachers' intention in the TRA model. A possible explanation is that the use of ICT in head teachers' schools had past the early stage of the introduction and implementation in which social influence maybe had a significant influence in head teachers' decision to support the uptake. In addition, subjective norm was not significant a predictor in TPB model in all three groups. This finding is consistent with other studies which found that the relationship between subjective norm and intention was weak and non significant (see for example Sheppard et al., 1988 and Godin and Kok, 1996 meta-analyses).

Another finding is that the explained variance in intention was higher in district officers (52% in TRA and 55.6% in TPB) than in school counsellors (22.7% in TRA and 28.5% in TPB) and head teachers (17.3% in TRA and 21.7% in TPB) in both models. This different explained variance in regression models could be due to different roles that head teachers, district officers and school counsellors have in the Greek educational system. Although these educators worked in the same local setting, they had different support roles in the uptake of ICT in their schools (see Chapter 1, Section 1.2). Therefore, one would expect to see differences in the explained variance of the support of ICT in schools of head teachers, district officers and school counsellors.

8.5.2 Head teachers' district officers' and school counsellors' actual support of the uptake of ICT in their schools

Pearson correlation results showed that head teachers' and district officers' behaviour (i.e. supporting the uptake of ICT in their schools) was significantly correlated with

intention and perceived behavioural control. In general these correlation findings means that increasing the intention and perceived behavioural control of the head teachers and district officers enhance their actual support of the uptake of ICT in their schools. Contrary to the results from the above correlations school counsellors' behaviour on the other hand was not correlated with intention. Behaviour was correlated positively only with perceived behavioural control. For this reason as was presented in Section 8.3.3 school counsellors' intention was not included in the regression model of the prediction of behaviour. One possible explanation for the non-significant correlation of the intention with the behaviour is that school counsellors' intention to support the uptake of ICT may have modified over time. According to Ajzen and Fishbein (1980), intention should not change during the time between the measure of intention and behaviour. In this study, school counsellors' intention to support the uptake of ICT was measured three months (March, 2002) before the actual support (behaviour) was measured. School counsellors may have changed their decisions to support the uptake during this period of three months.

According to the regression analysis results of the TRA model, head teachers' and district officers' intention directly affected their decision to support the uptake of ICT in their schools, which is consistent with previous studies' conclusions that intention is the determinant of behaviour (see Ajzen, 1988; Sheppard et al., 1988). On the other hand, the results of the regression analysis of the TPB model showed that head teachers' behaviour was influenced by intention and perceived behavioural control whereas district officers' and schools counsellors' behaviour was influenced by perceived behavioural control. Perceived behavioural control was the most important predictor in head teachers' intention. These results are in line with those of previous research that showed that perceived behavioural control predicted behaviour much better than intention (see Ajzen, 1991; Armitage and Conner, 2001). Results from these regression analyses indicate that behavioural changes regarding the support of ICT in schools can be induced by reinforcing head teachers', district officers' and school counsellors' intention and perceived behavioural control.

The addition of perceived behavioural control on the TPB regression analysis in head teachers and district officers resulted in a small but statistically significant increase in variance explained in head teachers' and district officers' behaviour. This is consistent

with the findings of previous studies regarding the role of perceived behavioural control in prediction of behaviour (see Ajzen, 1991). However, the percentage of the explained variance of behaviour was relative low. Previous TRA and TPB studies have shown when the explained variance of intention or behaviour is low this means that other psychological (e.g. past behaviour) or external variables (e.g. demographic characteristics and personality traits) influence individuals' intention or behaviour. The regression models of the present study did not consider those variables and therefore the relatively explained variance of the regression models imply that there are other factors which can explain intention and behaviour. This finding has implications for further research and is discussed in Chapter 9 (see Section 9.5.1).

8.5.3 Head teachers' district officers' and school counsellors' behavioural beliefs

A number of behavioural beliefs were found to correlate positively with head teachers' district officers' and school counsellors' intention to support the uptake of ICT in their schools as well as with their actual support. These correlations indicate that the higher value the head teachers, district officers and school counsellors attributed to ICT support the more ICT support they would like to give.

Most specifically, the results presented in Section 8.4.1 showed that the majority of the respondents considered that ICT support in their schools would help and improve pupils' learning (i.e. enrich pupils' knowledge, make the lessons more fun for pupils, help pupils work with one another), and help teachers' teaching (i.e. make preparation for lessons easier for teachers, help teachers organise better their lessons) and help schools to improve (i.e. help schools' better organisation, support the schools' personnel to cooperate, help my schools to implement other innovations).

In general, these findings imply that these beliefs played an important role in head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT. In addition, these findings suggest that future training programmes about administrators' support of the uptake of ICT in schools should incorporate the behavioural beliefs of this study as important concepts.

8.5.4 Head teachers' district officers' and school counsellors' normative beliefs

Head teachers, district officers and school counsellors perceived that 12 persons/organisations wanted them to support of the uptake of ICT in schools. These included their pupils, parents' association, other administrators, the Ministry of Education, and Greek primary teachers' federation.

In fact, analysis showed that most respondents possessed a strong desire to comply more with specific persons/organisations. For example, head teachers were motivated to comply with the Pedagogical Institute, their pupils, district officer, school counsellor and teachers while district officers and school counsellors were more motivated to comply with the Pedagogical Institute and the Ministry of Education. Therefore, if head teachers, district officers and school counsellors perceive that these persons/organisations are in favour of their support for the uptake of ICT in their schools, it is most likely that the former will support the uptake.

For the head teachers and district officers, the most important significant others that correlated with their intention or with their actual behaviour included their school counsellor, district officer (of other district), pupils, teachers, the Ministry of Education, Universities, local authorities and the Pedagogical Institute while for the school counsellors it included, their district officer of their district, head teachers, the Ministry of Education and universities.

These findings indicate that the influence of the most significant persons/organisations leads to a high intention to support the uptake of ICT in schools as well as the actual support. Therefore, these findings support the conclusion that the most efficient way of increasing the support of the uptake of ICT in Greek primary schools among head teachers, district officers and school counsellors is to influence the opinion of these persons and organisations and inform them about the benefits of supporting the uptake of ICT.

8.5.5 Head teachers', district officers' and school counsellors' control beliefs

The results presented in Section 8.4.3 showed that a number of factors can contribute to head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools as well as their actual support. These included sufficient number of computers, enough software for teaching purposes, a small number of pupils in each

class, support from teachers, parents' associations, the Ministry of Education, enough connections to the Internet and sufficient training opportunities on the pedagogical use of ICT for teachers. As discussed in Chapter 2, these factors affect the successful introduction and implementation of ICT in schools and are frequently discussed in the literature.

These findings have important implications for the Ministry of Education and for the persons/organisations involved in the introduction and implementation of ICT in Greek schools. Most specifically, the findings indicate that these persons/organisations should be aware of the control factors that play an important role in the successful support of the uptake of ICT by head teachers, district officers and school counsellors. They should help schools and their administrators to overcome the problems that relate to the number of computers, the appropriate software, the financial issues and the organisation of training programmes. The provision of the appropriate resources and continued help and support for the ICT use in schools would enhance head teachers', district officers' and school counsellors' perceived behavioural control. This will in turn cause them to feel that they have more control over the behaviour and to be more positive in their support with the uptake of ICT in their schools.

In sum, the results of this study provided partial support for the theories of Reasoned Action and Planned Behaviour in predicting the support of the uptake of ICT in schools by head teachers, district officers and school counsellors. The measures of the attitude toward behaviour, subjective norm and perceived behavioural control explained a substantial proportion compared to other studies (e.g. Ajzen, 1991) of head teachers', district officers' and school counsellors' intention to support the uptake of ICT in schools as well as their actual support.

Chapter 9 summarises the main findings of this study and draws out their implications for the uptake of ICT in Greek primary schools.

CHAPTER 9
FINDINGS, IMPLICATIONS, LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FUTURE RESEARCH

9.1 INTRODUCTION

In the previous four chapters (see Chapters 5, 6, 7 and 8) the research results were presented and discussed. Chapter 5 showed that the use of ICT in the 72 Greek schools was relatively low. The findings from Chapter 6 showed that head teachers, district officers and school counsellors influenced teachers' intention and behaviour to use ICT in their teaching indirectly through normative and control beliefs. Furthermore, the findings from Chapter 7 showed that attitudes towards computers had a significant influence on head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools. In addition to **attitudes towards computers**, in Chapter 8 other psychological factors appeared to have a strong influence on head teachers', district officers' and school counsellors' support. These were the **positive attitudes towards the support of the uptake**, strong perception of control over the support as well as a strong intention to support the uptake. This chapter summarises and discusses the major findings of this research and the significance of the study as well as the main implications. Finally, the limitations of the study and recommendations for further research are discussed.

9.2 SUMMARY OF FINDINGS AND CONCLUSIONS

In this section the main findings presented in the previous four chapters are summarised to explain the importance of factors that affect head teachers', district officers' and school counsellors' support for the uptake and use of ICT by primary teachers.

9.2.1 The uptake of ICT in primary schools

The results in Chapter 5 showed that the uptake of ICT in Greek schools was relatively low. In most schools only a minority of teachers and pupils were using ICT in their teaching. One possible explanation is the lack of teachers' access to resources (e.g. hardware, software). As we have seen in Chapter 5 some schools did not have access to the Internet and in some schools the pupil/computer ratio was very high (e.g. in school

17 the pupil/computer ratio was 65 pupils per computer, see Figure 5.10, in Section 5.5.1). It is worth noting that in Greece at the beginning of 2002 the use of the Internet was very low. The Flash EB 112 survey (EC 2002) that was conducted in all European countries in 2002 found that Greece was the last in line in terms of Internet usage. More specifically, in response to the question "do you personally use the Internet", 16.8% of the Greek respondents answered positively. This percentage was the lowest among all EU Members, the next lowest being Spain (29%), Portugal (29%) and Italy (33%), whilst the EU average was 47.9%. This means, that the Internet had not yet penetrated Greek society substantially in 2002. In addition, there was a lack of simulation and measurement and control software in the vast majority of schools. A number of studies have shown that the lack of access to resources is one of the barriers that prevent teachers from making full use of ICT in their teaching (see Jones, 2004). In a previous international study of the obstacles to the integration of ICT in schools, Pelgrum (2001) and Pelgrum and Anderson (2001) found that when teachers were asked about the major obstacles to their use of ICT in teaching, they mentioned that these included an insufficient number of computers, insufficient peripherals, not enough copies of software, and an insufficient number of computers that can simultaneously access the Internet.

Chapter 5 also showed that for the majority of teachers the use of ICT was restricted to word processing, art/graphic software and multimedia encyclopaedias "CD-ROM". This finding is consistent with the results of other studies that have found that teachers more often used only word processing (Preston et al., 2000; Williams, 2000). This restriction of ICT use in this study can be explained by the fact that other types of software such as simulations, modelling and measurement and control were available in only a very small number of schools (see Chapter 5, Section 5.6.2). In addition, another possible reason for the fact that ICT use was restricted in the three categories of software mentioned above is the lack of teachers' knowledge. As we have seen in Chapter 5, teachers had a very low level of knowledge and ability to use advanced modelling software for teaching modelling skills and concepts. This finding supports the earlier finding that the lack of computer knowledge and skills is a barrier to teachers' use of ICT in their teaching (see Pelgrum and Plomp, 1993; Rahim and Mohamed, 1998; Williams, 2000; Jones, 2004).

The small percentages of teaching staff and pupils of the 72 schools that used ICT was due to the policy of schools regarding the use and teaching of ICT for pupils of specific

age groups. As we have seen in Chapter 5, these Greek primary schools introduced and implemented ICT in teaching and administration through various pilot programmes and projects. The policy of these projects was to use ICT only with specific age groups. For instance, a number of schools of this study had participated in "The Island of Faiakes" project, which aimed to use ICT in the two highest age groups of the schools (i.e. 10 to 12 years old). Therefore, one would not expect in these schools to see all pupils and teachers using ICT.

Another reason for the low uptake in the 72 primary schools is the fact that ICT was new to these schools. At the date of data collection (March 2002) computers had been used in a number of schools for one to three years. This means that these schools were in the early stages of implementing ICT in teaching. Previous studies have shown similar results. For instance, Muir-Herzig (2004) found that the use of ICT was low among 43 teachers because ICT had only been used in schools for two years.

This study also showed that those teachers who had used ICT for many years tended to use ICT more often in their teaching. It worth noting that this correlation was modest (r=.48) implying that the association between the frequency of use of ICT and the number of years of ICT that teachers had used in teaching is relatively weak. Other factors may be influence the relationship between these two variables. However, it was not among the objectives of this study to examine those factors that influence the relationship between these two variables. This finding is supported by other research where there was a positive correlation between teachers' level of use of ICT in their teaching and the number of years that they had used ICT in teaching (e.g. Reinen and Plomp, 1993). In addition, consistently with other earlier studies (e.g. Pelgrum and Plomp, 1993; Reinen and Plomp, 1993), this study showed that when teachers had received more training or had more knowledge about computers, they tended to use ICT more frequently in their teaching. However, the majority of the Pearson correlations were modest (i.e. varied from r=.424 to r=.458). These modest correlations suggest that a variety of other factors may be influence the weak relationship between teachers' training and knowledge about computers and their frequency of ICT in their teaching.

Finally, 79% of teachers' reported having access to a computer at home and 83% of them had access to the Internet. Those teachers who had access to a computer at home used ICT more frequently in their teaching. This finding supports previous studies in

other countries which showed that access to computers outside of the work place has a positive impact on the use of ICT in teaching (see Preston et al., 2000; Williams et al., 1998; Becta, 2001).

The above findings agree with the findings of other surveys of non-Greek primary and secondary teachers (e.g. Williams, 1998; Muir-Herzig, 2004) which reported low levels of use of ICT in teaching and narrow and limited use of a range of ICT resources (Cox and Abbott, 2004; Cox and Webb, 2004). In summary, although the majority of teachers in this study had very positive attitudes towards computers and support from their administrators (see later sections), the uptake of ICT in the Greek schools was relatively low. According to Jones (2004), apart from the attitudes towards computers there are some other factors that influence the uptake of ICT by teachers in schools. These include teachers' level of confidence in using the technology, lack of time and access to quality resources, inadequate training to use ICT as well as the lack of technical support.

The low uptake of ICT in the schools of this study could be better understood if one took the Greek Education policy towards ICT into consideration. As we have seen in Chapter 1 (see Section 1.3.1), the introduction of ICT use in Greek primary schools in general is very recent and the use is not as high as in the United Kingdom and the United States. The involvement of Greek schools in national projects was by no sense obligatory. The schools of this study introduced ICT by participating in national projects, and therefore the head teachers of those schools and most of the teachers at that time were willing to implement ICT in their teaching. At that time (i.e. the end of the 90s), there was no specific national educational policy related to the aims of the use of ICT in primary schools. In addition, there was no educational policy which recommended or paid for appropriate hardware, software, training or support. Therefore, one would expect that the uptake of ICT in Greek primary schools would be low.

In general, the finding of this study regarding the low uptake of ICT agrees with Fullan's theory (2000; see Chapter 2, Section, 2.3) that implementation is a complex process and the implementation phase can take from three to five years while larger scale efforts can take five to ten years. According to his theory each educational innovation or change needs to overcome many obstacles before a successful implementation can take place.

9.2.2 Teachers', head teachers', district officers' and school counsellors' attitudes towards computers

As we have seen in Chapter 4 (see Section 4.1), one of the objectives of this study was to measure the attitudes towards computers of the teachers that used ICT in the 72 Greek primary schools as well as the attitudes of the head teachers, district officers and school counsellors of these schools. The results presented in Chapters 7 and 8 (see Sections 6.2 and 7.2), showed that, in general, the respondents had very positive attitudes towards computers. More specifically, the majority of educators had very low computer anxiety, were confident and able to work with computers and liked and enjoyed computers. In addition, they felt that computers are useful in education and society and they were highly motivated to learn more about computers. Finally, respondents scored relatively low for the e-mail subscale compared to the other seven attitude subscales. This may be due to the fact that a small number of schools, as discussed in Chapter 5 (see Section 5.5.5), had no access to the Internet or e-mail and at the schools where access to the Internet was provided, the teachers did not make great use of e-mail in their teaching. Another explanation for this relatively low score may be the fact that many district officers and school counsellors did not use e-mail (see Chapter 5, Section 5.8.5).

The positive attitudes of teachers towards computers in the current study is an encouraging finding. As we have seen in Chapter 2 (see Section 2.3.3.7) teachers' positive attitudes towards computers are recognised as a necessary condition for the successful use of computers in their teaching (e.g. Williams et al., 2000, Shapka and Ferrari, 2003). Furthermore, in a review of the literature on factors affecting the uptake of ICT by teachers, Jones (2004) showed that teachers' negative attitudes as well as teachers' resistance to change are major barriers to the use of ICT by teachers. Given earlier correlation results in the current study (see Chapter 6, Section 6.2.13) that show a strong relationship between attitudes towards computers and use of ICT in teaching, these results imply that teachers' positive attitudes will also lead to higher ICT use in teaching in future in these 72 Greek schools.

The finding concerning teachers' positive attitudes towards computers is consistent with findings of other studies, mentioned in Chapter 2 (see Section 2.3.3.7). For example, Pelgrum and Plomp (1991) who studied 22 different national educational systems found that teachers who used computers in their teaching had in general quite positive attitudes towards computers.

The finding regarding the positive attitudes of head teachers in this study is different from what has been reported in a previous study of Greek head teachers who did not have very positive attitudes in secondary schools in the 1980s (Pelgrum and Plomp, 1993). As we have seen in Chapter 2 (see Section 2.3.4.2) these less positive attitudes of Greek head teachers can be explained through the fact that at the end of 1980s only about 5% of the schools in Greece used computers (see Pelgrum and Plomp, 1993). Therefore, the results of the current study suggest an upward change in head teachers' attitudes toward computers over the last decade. Furthermore, the finding of the current study is consistent with the head teachers' positive attitudes towards ICT in 26 education systems in the late 1990s (Pelgrum and Anderson, 2001). Most specifically, Pelgrum and Anderson (2001) found that head teachers tended to have a positive attitude toward ICT usage in their respective schools. However, "the depth of that opinion varied considerably. In some countries, school leaders were very positive; in others were only very slightly positive" (p. 200). It is worth mentioning that Pelgrum and Anderson (2001) did not examine the relationship between head teachers' positive attitudes towards computers and the level of uptake of ICT in schools.

Another objective of this study was to investigate the influence of head teachers', district officers' and school counsellors' attitudes towards computers on their support toward the uptake of ICT in their schools. Examination of attitudes, undertaken by other researchers (see Chapter 2) did not provide evidence whether specific attitudes towards computers subscales could predict these three groups of educators' support for the uptake of ICT in their schools. However, as we have seen in Chapter 2 (see Section 2.3.4.2), there is a small number of studies that investigated only the relation of the uptake of ICT with head teachers' attitudes towards computers (e.g. Cox et al., 1988; Pelgrum, 1993). For example, Cox et al., (1988) in their research about the factors which affect the uptake of ICT in eight primary schools found that the level of uptake was higher in schools where the head teacher had a more positive attitude towards computers.

In the present study, Pearson correlation results showed that the greater the positive attitude of the head teacher towards computers (e.g. confidence, usefulness, liking, and training needs) the greater was the head teachers' support for the uptake of ICT in the school. It is worth noting that these correlations were modest (e.g. the r value for anxiety attitude subscale was .468) implying that the relationship between head teachers' attitudes towards computers and their support of the uptake of ICT in their schools is

relatively weak. Other factors may be influence the relationship between these two variables. This finding, which is important for the successful uptake of ICT in schools, is similar to that found by Pelgrum (1993). He found that there was a clear association between the attitudes of head teachers and the emphasis on computer integrated learning within the school. Most specifically he found that "schools whose head teachers have positive expectations regarding the educational impact of computers tend to emphasise computer integrated learning more than schools with head teachers who are less positive" (ibid, p. 209).

Similarly, the more positive the attitudes of district officers and school counsellors towards confidence, perceived educational impact and training needs, the greater was the support towards the uptake of ICT in their schools. Furthermore, the above correlation results of the current study confirm those theories (e.g. Fishbein and Ajzen, 1975; Triandis, 1980) demonstrating the relationship between peoples' attitudes and their behaviour.

The results of the regression analysis in Chapter 7 (see Section 7.3.2) indicated that head teachers' lower computer anxiety was the strongest of the positive attitudes measured through the eight attitudes' subscales in influencing their support of the uptake of ICT in their schools. However, it is worth noting that the amount of variance explained by the head teachers' data was not very large (the Adjusted R^2 was 20.7%). This is discussed in Section 9.5. This important finding supports earlier findings in the literature which have shown that high computer anxiety causes the avoidance of computer use in general (Russel and Bradley, 1997; Brosnan, 1998; Weil and Rosen, 1995; Heinssen et al., 1987; Bozionelos, 2001). Other previous studies (e.g. Chu and Spires, 1991; Gardner et al., 1993) found that the acquisition of computer experience by individuals is associated with decreases in their computer anxiety scores. In general, the above finding, implies that decreasing head teachers' computer anxiety is critical to the success of the support of the uptake of ICT in schools.

Furthermore, the present findings showed that the educational impact subscale was the single major determinant of district officers' behaviour to support the uptake. This means that district officers are likely to support the uptake of computers in their schools when computers are considered to be useful to their schools. This finding means that 84.9% of the variance remains to be explained. Previous attitudes towards computers

studies (e.g. Al-Khaldi and Al-Jabri, 1998) have shown when the explained variance of behaviour is low this means that other psychological (e.g. past behaviour) or non – attitudinal variables (e.g. demographic characteristics, degree of computer experience, degree of access to computers) may influence the relationship between attitudes and behaviour. The district officers' regression model of the present study did not consider those variables and therefore the low explained variance of the regression model imply that there are other factors which can explain better their support of the uptake of ICT in their schools. This finding has important implications for research on the relationship between attitudes towards computers and support of the uptake of ICT in schools (see Section 9.5.1).

The influence of this attitude subscale (i.e. educational impact) is consistent with the role and the responsibilities of district officers in their schools. District officers are responsible for the management of a number of schools in their district. Therefore, one could expect to see that these education leaders decide to support the uptake of ICT if they believe that computers will have a positive effect on the improvement of education in their schools.

Finally, the regression analysis results in Chapter 7 (see Section 7.3.2) showed that the school counsellors' positive attitudes towards their own computer training needs (i.e. the training needs subscale) influenced their support of the uptake of ICT in their schools[1]. However, as we have seen in Chapter 4 (see Table 4.10 in Section 4.6.5.2) the Cronbach alpha results for the training needs subscale was low. Therefore, the regression analysis results of the school counsellors could not be considered significant. This is also discussed in the limitations section of this chapter (see Section 9.4.2).

In summary, the above results imply that the head teachers', district officers' and school counsellors' positive attitudes towards computers is a very important factor for the successful introduction and implementation of ICT in schools. Furthermore, the above results support the theories and empirical evidence from previous studies indicating a positive impact of attitudes on behaviour (see Ajzen and Fishbein, 1980; Eagly and Chaiken, 1993 for review) as well as the impact of attitudes towards computers on

[1] As we have seen in Chapter 7 (see Table 7.2 in Section 7.2) the training needs subscale consisted of five attitude items. One of them related to the importance of computer training in education (i.e. "In-service training courses about computers should be made compulsory"). The other four items referred to training needs of school counsellors. An example of an item was "I would like to take part in a computer course to learn more about computers".

behaviours that related to computer utilisation (e.g. Kay, 1990; Al-Khaldi and Al-Jabri, 1998).

In addition to measuring attitudes towards computers this study used the Theories of Reasoned Action (TRA) (see Figure 9.1) and Planned Behaviour (TPB) (see Figure 9.2) in order to examine and predict head teachers' district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools. In addition, these theories were also used to identify the factors that influenced teachers' intention and behaviour to use ICT in their teaching. As we have seen in Chapter 3 (see Sections 3.5.3 and 3.5.5), the TPB has been found to be a better framework in predicting intention and behaviour in many studies, compared to the TRA. Therefore, one of the objectives of this study was to compare the predictive validity of the TRA and TPB (see Chapter 4, Section 4.2). The main findings are discussed in the following sections. In each section the results are presented and discussed firstly for the TRA and secondly for the TPB. Finally, in Section 9.2.10 the predictive validity of these two models are discussed separately for teachers, head teachers, district officers and school counsellors.

The findings in Chapter 6 and 8 showed both similarities and differences between the four groups regarding the factors that influence their intention and behaviour. It is worth noting that no previous research has examined head teachers', district officers and school counsellors' intention and behaviour to support the uptake of ICT in their schools. Therefore, the findings are discussed in relation to other education and non-education studies that used the TRA and TPB.

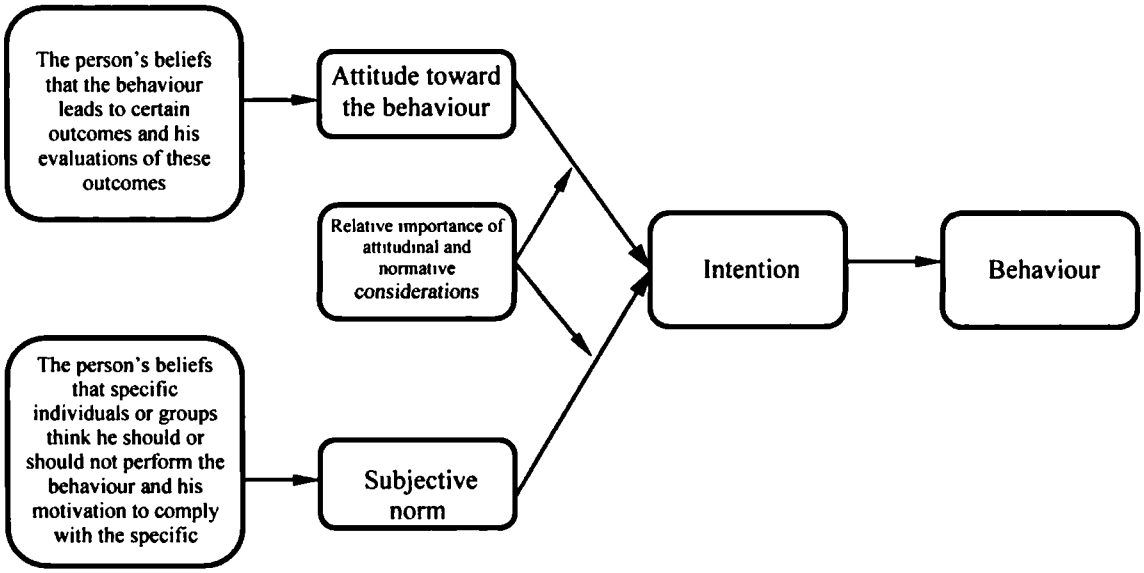

Figure 9.1 - The Theory of Reasoned Action (repeated from Figure 3.2, on page 105).

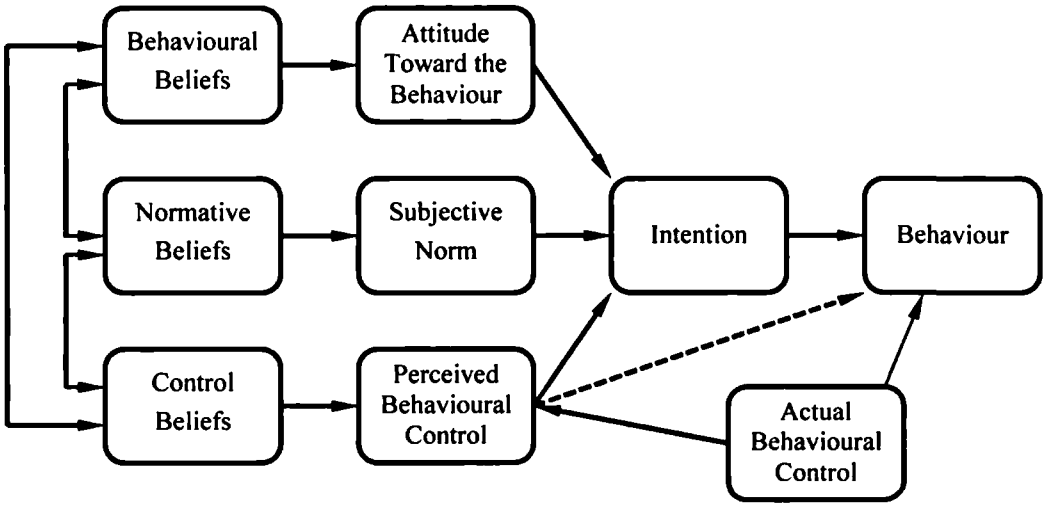

Figure 9.2 – The Theory of Planned Behaviour (repeated from Figure 3.4, on page 111).

9.2.3 The effects of attitudes towards the behaviour on intention

The present study found that the attitude toward the behaviour (see Figures 9.1 and 9.2) was one of the important factors that influenced teachers' intention to use ICT in teaching as well as head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools. These findings are in agreement with the Theory of Reasoned Action (see Figure 9.1) and the Theory of Planned Behaviour (see Figure 9.2) stating that attitude is an important determinant of intention (see Ajzen and Fishbein, 1980; Ajzen, 1991).

Table 9.1 (see Section 9.2.10) presents the contributions of attitude toward the behaviour in intentions according to the Theory of Reasoned Action and the Theory of Planned Behaviour. Examining the beta columns shows that the beta coefficients of attitude toward the behaviour in Theory of Reasoned Action model are higher in teachers', head teachers' and school counsellors' intention. In addition, the beta coefficients of attitude toward the behaviour in Theory of Planned Behaviour model are higher in district officers' and school counsellors' intention. Given that the Theory of Planned Behaviour is a better framework in this study than the Theory of Reasoned Action (see Section 9.2.10) we conclude that the attitude toward the behaviour is the most important finding in district officers' and school counsellors' intention and the second most important finding in teachers' and school counsellors' intention.

Most specifically, the finding that teachers' attitude towards the use of ICT was a significant predictor of intention both support and contradict evidence in the literature of ICT. For example, the finding of this study disagrees with the previous results of Czerniak et al., (1999) which used the TPB to examine science teachers' intention to use education technology in their teaching. They found that attitude towards the behaviour was not a significant predictor of teachers' intention. On the other hand, the finding that attitude was a significant predictor in teachers' intention, supports the results of other studies that used the TRA model. For instance, Karahanna et al., (1999) found that the attitude toward the behaviour was a significant predictor in ICT users' intention to continue to use IT in their work place.

According to the published literature on factors affecting the uptake of ICT (see Chapter 2), there have not been any previous studies which have examined head teachers', district officers' and school counsellors' **attitudes towards the support of the uptake**

of ICT in their schools. However, there have been studies (e.g. Cox et al., 1988; Pelgrum, 1993) that examined the relationship between head teachers' **attitudes towards computers** and the uptake of ICT in their schools. Therefore, the current research extends the literature about the factors that influence the support of the uptake of ICT in schools.

The findings of this study present additional evidence for Fullan's theory (see Chapter 2, Section 2.3) regarding the psychological factors that influence the implementation of an educational innovation. As discussed in Chapter 2 (see Section 2.3) the implementation of each innovation involves various groups of participants at different levels of the system. These people are shown in Figure 9.3 (see Box B).

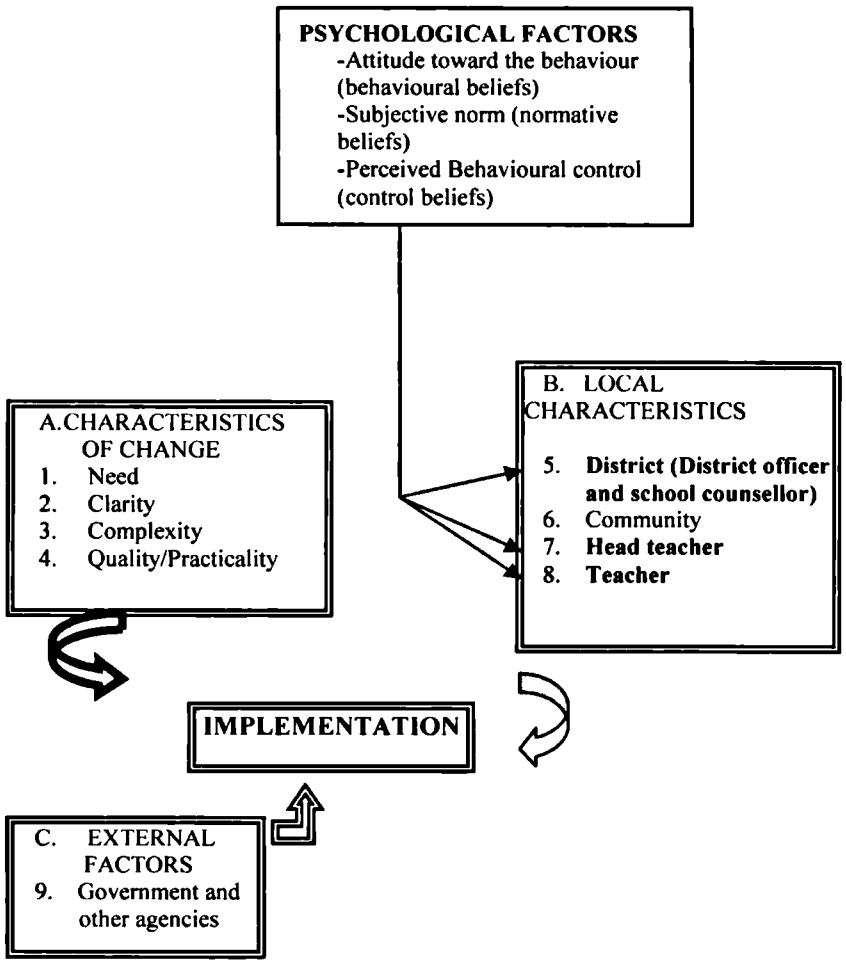

Figure 9.3 - The psychological factors that influence the local characteristics of the implementation phase in this study.

Although Fullan (2001) focused mainly on sociological factors that influence these persons in the process of the implementation phase of an innovation, he also mentioned the important role of psychological factors during the innovations. According to his theory, in order for people to implement an innovation they need to change their beliefs and behaviour. For example, Fullan (2001) claims that the alteration of beliefs is an important factor that influences teachers to use new materials or technologies and to use new teaching approaches. However, Fullan's theory did not specify in detail other psychological factors that influence the implementation phase and did not make use of any specific psychological theoretical framework on how these factors influence the implementation.

This study using the Theories of Reasoned Action and Planned Behaviour showed that peoples' attitudes towards the behaviour influenced not only teachers to use ICT in their teaching but also the executives of education to support the uptake of ICT in their schools. Furthermore, as discussed in Section 9.2.7 the behavioural beliefs provided the cognitive and affective foundations for attitudes towards behaviour and a number of them correlated positively with the use of ICT in teaching and the support of the uptake of ICT in schools. Besides the attitudes, other psychological factors in this study were found to be important in order to explain the behaviour of people involved in the process of ICT innovation in schools. These were the subjective norm and the perceived behavioural control. These factors, that influenced the four groups of educators in this study are shown in Figure 9.3 (see Psychological factors box) and presented in the following sections.

9.2.4 The effects of subjective norm on intention

As we have seen in Chapter 3, the subjective norm (see Figures 9.1 and 9.2) is the perception of social pressure to perform or not to perform the behaviour[1]. Subjective norm is related to normative beliefs (see Section 9.2.8). According to Ajzen (1991), the more favourable the subjective norm, the stronger would be the person's intention to perform the behaviour in question.

[1] Two example items of subjective norm component were: "It is expected of me that (I should/I should not support) the uptake of ICT in my school during the next three months", "The people in my life whose opinions I value would approve/disapprove of my supporting the uptake of ICT in my school during the next three months".

Table 9.1 (see Section 9.2.10) presents the contributions of subjective norm in intentions according to the Theory of Reasoned Action and Theory of Planned Behaviour. As we can see in this table, subjective norm in the Theory of Reasoned Action did make statistically significant contributions in all intentions, except head teachers' intentions. In addition, subjective norm was statistically significant in teachers' intention in the TPB model. However, in all cases (except district officers' intentions in the Theory of Reasoned Action model), the degree of contribution (i.e. beta coefficients) was much less than that of the other variables of the Theory of Reasoned Action (i.e. attitude) and Theory of Planned Behaviour (i.e. attitude and perceived behavioural control). Therefore, the subjective norm in this study is less important finding compared to attitude and perceived behavioural control.

Subjective norm was a statistically significant predictor of teachers' intention in the present study, in line with the study with science teachers by Czerniak et al., (1999). The results presented in Section 9.2.8 show that this social pressure was perceived to come from 12 persons/organisations. For example, head teachers, district officers and school counsellors were all viewed as strongly in support of teachers' using ICT in their teaching and teachers were motivated to comply with these persons. However, the teachers' subjective norm was not the strongest predictor in the two models. The subjective norm was the second most significant predictor in the TRA model and the third most significant predictor in the TPB model. This suggests that a favourable opinion of significant others was important for teachers' intention and behaviour to use ICT however, the influence of these people was not very strong compared to attitude towards the behaviour and perceived behavioural control. Karahanna et al., (1999) found that the subjective norm is stronger for potential users of ICT than for actual users of ICT. In the present study, teachers used ICT in their teaching and therefore were experienced ICT users. Different results may be obtained if this study measured intentions to use ICT and subjective norm from those teachers in schools which did not use ICT in their teaching. In Greece in 2002 the uptake of ICT in primary schools was very low and only a small number of primary schools used computers for teaching purposes. As we have seen in Chapters 1 and 5 the 72 schools of this study were among them. These schools introduced ICT through their voluntary participation in national projects supported by the Ministry of Education or other organisations.

Pearson correlation results in Chapter 8 showed that head teachers', district officers' and school counsellors' perception of social pressure (i.e. subjective norm) was positively correlated with intention. This means that the more head teachers, district officers and school counsellors felt that the social pressure (i.e. subjective norm) to support the uptake of ICT was high, the higher the intention to support the uptake of ICT in their schools. Included among these persons/organisations were teachers, head teachers, the Ministry of Education, district officers and school counsellors of other districts. As we have seen in Chapter 8 (see Section 8.4.2), all of these persons expected head teachers, district officers and school counsellors to support the uptake of ICT in their schools and education executives reported a high degree of motivation to comply with these persons/organisations.

Another main finding from the regression analysis of this research is that the subjective norm was a significant predictor only in the TRA model and mainly for district officers' and school counsellors' intentions to support the uptake of ICT in their schools. This factor was the most important predictor for district officers which is consistent with the findings of previous TRA education studies (see Ajzen and Fishbein, 1980). The fact that the subjective norm was a significant predictor only in district officers' and school counsellors' intention and not in head teachers could be due to roles that they have in the Greek educational system. District officers and school counsellors have the responsibility for the overall management and supervision of a number of schools in their area. Every day, they visit different schools, have meetings with different persons/organisations and they try to perform the educational policy of the Ministry of Education. Furthermore, during the time that this study was conducted, only a small number of their schools used ICT. This means that different individuals/organisations expected district officers and school counsellors to support the introduction of ICT in other schools. Therefore, one would expect to see subjective norms being stronger for district officers and school counsellors than for head teachers whose schools used ICT. In addition, given the results of Karahanna's et al., (1999) study, in the current research, head teachers' schools were past the early stage of the introduction of ICT in which social influence could have a significant effect on head teachers' decision to support the uptake of ICT.

In general, the above findings showed that the predictive validity of the subjective norm component was low in teachers' prediction of intention and not significant in the Theory

of Planned Behaviour for head teachers, district officers and school counsellors' intention. This finding is consistent with other TPB studies (Godin and Kok, 1996; Armitage and Conner, 2001) which found the subjective norm component to be less important or not significant in predicting people's intention compared to attitudes toward the behaviour and perceived behavioural control components. This finding should not be taken as evidence that educators' perception of social pressures to support the uptake of ICT is unimportant in this study. As we have seen in Chapter 1, the Greek educational system is centralised. This means that teachers and administrators in each educational change or innovation perceive pressure from important others of the educational system to introduce and implement it in their schools. This perception of social pressure was supported by the data of this study. For example, as it was discussed in Chapters 6 and 8 subjective norm in this study associated with intention. In addition, head teachers, district officers and school counsellors in this study felt a positive pressure to support the uptake of ICT in their schools from 12 persons/organisations and were strongly motivated to comply with them (see Section 9.2.8). However, the finding that the subjective norm in the regression analysis is not statistically significant compared to other two components of the TPB suggest that head teachers, district officers and school counsellors make their decisions to support the uptake of ICT based on their attitudes and their perceived behavioural control. This finding may be explained by the fact that the 72 Greek schools participated in specific projects. The involvement of teachers, head teachers, district officers and school counsellors in these projects was not obligatory. Because their involvement was voluntary, head teachers, district officers, and school counselors may have not perceived strong normative pressure to support the uptake of ICT in their schools. In other words the participation in these projects was fairly personal and individual and may be driven less by social influences. Another possible explanation is that subjective norm may be was strong when the introduction of ICT in schools was in the early stages. In the present study, subjective norm was measured two years after the implementation of ICT in the majority of the 72 schools. This means that one would not expect to see a very strong subjective norm during that period of time. Further research should clarify whether the impact of subjective norm is stronger for educators who were involved voluntarily in projects than for educators who were not involved.

9.2.5 The effects of perceived behavioural control on intention

Another important factor emerging from the results of the regression analysis for the Theory of Planned Behaviour model that influenced the intention of all three groups to support the uptake of ICT as well as teachers' intention to use ICT was the perceived behavioural control[1]. This means that during the introduction and implementation of the ICT innovation it is not enough for all schools to be equipped with the appropriate equipment and resources but also the individuals involved should have high perceived behavioural control.

Table 9.1 (see Section 9.2.10) presents the contributions of perceived behavioural control to the prediction of the samples' intention (see "beta" column). Table 9.1 shows that the perceived behavioural control is a statistically significantly component in all intentions. As we can see in this table, the beta coefficients of perceived behavioural control in teachers' and head teachers' intention are higher than the beta coefficients of attitude and subjective norm. On the other hand, the beta coefficients of this component in district officers' and school counsellors' intention are smaller than the beta coefficients of attitude toward the behaviour. On the basis of these results, we conclude that perceived behavioural control is a more important factor in teachers' and head teachers' intention and the second most important factor in district officers' and school counsellors' intention.

In addition, inspection of the "Adjusted R^2" column in Table 9.1 shows that the inclusion of perceived behavioural control in the explanation of intention for all samples resulted in a statistically significant increase in the explained variation over the amount explained by the attitude and subjective norm of the Theory of Reasoned Action. For example, when the perceived behavioural control was added into the teachers' regression analysis the Adjusted R^2 of intention increased from 42.1% to 55.2%. The most important finding in this table is not only the increment of the explained variance but also the importance of perceived behavioural control in explaining the samples' intention.

[1] As we have seen in Chapter 3, the perceived behavioural control reflects the individual's perception of control over the behaviour. To assess educators' perceived behavioural control four different 7-point scales were used. One of the four perceived behavioural control items was the following. "How much control do you believe you have over using ICT in your teaching during the next three months? (no control/ complete control).

This component provides more information about the factors that facilitate the use and the support of the uptake for teachers' and executives' intention, something that the Theory of Reasoned Action does not provide. Therefore, the addition of perceived behavioural control to the regression analysis of the Theory of Planned Behaviour, combined with attitude and subjective norm leads to a better explanation of teachers' intention to use ICT and head teachers', district officers', and school counsellors' intention to support the uptake of ICT. This result confirms previous researchers' conclusions that perceived behavioural control is an important component in order to understand and explain individuals' intentions for various behaviours (see Ajzen, 1991; 2002; Chang, 1998; Davis et al., 2002; Armitage and Conner, 2001).

One of the most significant findings of the explanation of teachers' intention in the TPB model was that the perceived behavioural control had a stronger influence on intention than attitude and subjective norm. This result suggests that teachers' intention is influenced firstly by having a positive perception of the appropriate support, opportunities and resources to use ICT in their schools and secondly by having positive attitudes towards the use of ICT in teaching or by receiving pressure from other significant persons/organisations. This finding is consistent with the results of Czerniak et al., (1999) who used the TPB to analyse teachers' intentions to use educational technology and implies that perceived behavioural control has motivational implications for teachers' intention to use ICT in their teaching.

Moreover, it is noteworthy that perceived behavioural control was the only significant predictor of head teachers' intention to support the uptake of ICT in their schools. Furthermore, the perceived behavioural control in district officers' and school counsellors' intention was the second most important predictor after the attitude. Consistent with the TPB (see Ajzen, 1991), these findings suggest that head teachers, district officers and school counsellors decide to support the uptake of ICT in their schools, not only if they have positive attitudes towards the support but also if they have a perception of control of the appropriate resources and opportunities to support the uptake of ICT.

As we have seen in Chapter 1, the Ministry of Education decides on almost all the issues that concern teaching, personnel administration, expenditure, school operation etc. This means that head teachers, district officers and school counsellors many times do not

have the appropriate opportunities and total control in order to support the introduction and implementation of their own initiatives in their schools. However, the head teachers and other administrators of this study received support from the Ministry of Education and other organisations because their schools participated in special projects regarding the uptake of ICT. The presence of this support may be encouraged the teachers of this study to use ICT and administrators to support the uptake of ICT in their schools. This finding suggest that in order the centralised educational system of Greece to support the uptake of ICT in remaining primary schools more effectively must increase the availability of appropriate resources in schools and provide a number of opportunities for teachers, head teachers, district officers and school counsellors. This may make teachers and administrators to feel that they have a lot of control over the use of ICT in teaching and the support of the uptake of ICT in their schools.

9.2.6 Prediction of behaviour

This study compared the Theory of Reasoned Action with the Theory of Planned Behaviour not only to predict intention but also the actual behaviour (i.e. use of ICT in teaching and support of the uptake of ICT in schools). Consistent with the Theory of Planned Behaviour (see Ajzen, 1991), Table 9.1 (see Section 9.2.10) shows that the addition of perceived behavioural control improved the predictive validity of the model in predicting **head teachers'** and **district officers'** behaviour to support the uptake of ICT in their schools as compared to the predictive validity of the Theory of Reasoned Action. In addition, the perceived behavioural control was the only statistically significant component in school counsellors' support of the uptake of ICT in their schools. For school counsellors, as we have seen in Chapter 8 (see Section 8.3.3), intention was not correlated with their behaviour and therefore in this sample was not able to compare the Theory of Reasoned Action and Theory of Planned Behaviour. Furthermore, the perceived behavioural control was not a statistically significant component in teachers' behaviour to use ICT. The role of perceived behavioural control in relation to intention is discussed below.

In predicting teachers' ICT use, the Pearson correlation results in Chapter 6 (see Section 6.3.2) showed that both intention and perceived behavioural control were positively correlated with behaviour. These results show that teachers who perceived that they had more control over the use of ICT and who had more positive intention to use ICT tended to use ICT in their teaching more often.

The regression analysis in the TRA model showed that intention was a significant predictor of ICT use. The findings from the regression analysis in the TPB model also showed that the teachers' intention to use ICT and not their perceived behavioural control influenced most strongly their ICT use in teaching. However, as we have seen in the previous section (see Section 9.2.5), perceived behavioural control influenced intention and therefore this component had indirectly influenced the behaviour through the intention. This finding is consistent with other non education studies (e.g. Bozionelos and Bennet, 1999) which have found that the perceived behavioural control failed to be a significant predictor of behaviour. These studies conclude that this happens when people's behaviour is under their control. As we have seen in Chapter 4 (see Section 4.6.6), the teachers in the present study used ICT in their teaching. This means that using ICT in their teaching appears to be under the control of these teachers. It is possible that the measures of perceived behavioural control will be more appropriate for explaining the behaviour of those teachers in schools who do not use ICT or do not have the appropriate resources and opportunities to use ICT in their schools. Therefore, a further study could compare the influence of perceived behavioural control on behaviour between those teachers that use ICT and those that do not use ICT in their teaching.

The present research is different from that by Czerniak et al., (1999) and extends their findings for the use of the Theories of Reasoned Action and Planned Behaviour. Their research, although it used the TPB, did not examine the effects of perceived behavioural control on the behaviour, but only on the intention for behaviour. This is in contrast with the TPB, which claims that perceived behavioural control is equally important in predicting human behaviour. Furthermore, although the regression models in the current research predicted teachers' use of ICT in their teaching, this does not imply that these teachers used a wide range of ICT types and resources. As discussed in Chapter 5, the use of ICT was restricted to the use of word processing, art/graphic software and multimedia encyclopaedias "CD-ROM". Additionally, it should be noted that this use was relatively low, similar to that which has been found in Scotland and Ohio of the U.S.A. in previous studies (see Williams, 2000; Muir-Herzig, 2004).

The findings of the TRA model in this study also identified head teachers' and district officers' intention as a key predictor of their support of the uptake of ICT in schools (see Chapter 8, Section 8.3). Similar findings have been found in other education studies, as well as non-education studies (see Chapter 3). On the other hand, the results of the

regression analysis of the TPB model showed that head teachers' behaviour was influenced by intention and perceived behavioural control whereas district officers' behaviour was influenced by perceived behavioural control. Perceived behavioural control was the most important predictor in head teachers' behaviour. Moreover, the addition of perceived behavioural control resulted in a small but statistically significant increase in variance explained in head teachers' and district officers' behaviours. Therefore, these results provide evidence that the Theory of Planned Behaviour is a better framework in predicting head teachers' and district officers' support of the uptake of ICT in their schools compared to the Theory of Reasoned Action. These results are in line with those of previous research that showed that perceived behavioural control predicted behaviour much better than intention (Madden et al., 1992; Ajzen, 1991; Davis et al., 2002; Armitage and Conner, 2001).

As we have seen in Chapter 1, the education system of Greece is highly centralised, and decisions and formulations of policy are controlled be the Ministry of Education. Public education is guaranteed by the constitution and imposed by a consensus that all educational expenses should be provided by the Ministry of Education. Given this, teachers and other administrators many times perceive that they do not possess the ability to bring about educational change. They believe that barriers (e.g. lack of appropriate resources, training opportunities) impede their ability to implement educational reform. However, the sample used in this study consisted of educators who were involved in projects with regard to the introduction of ICT in their schools. Given their participation in these projects, head teachers and district officers had taken more responsibility to support the uptake of ICT in their schools and therefore had high perceived behavioural control. These results mean that successful support of the uptake of ICT in Greek educational system should not need only head teachers and other administrators to have strong intention to support the uptake, but also they need to believe that they have a lot of control over the support of the uptake of ICT. Section 9.10 discuss in detail the contribution of perceived behavioural control in explaining head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools.

The present study was also able to identify a number of behavioural, normative and control beliefs which were associated with head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools as well

as with teachers' intention and behaviour to use ICT in their teaching. According to Ajzen (2002) these beliefs play a central role in the Theory of Planned Behaviour. "They are assumed to provide the cognitive and affective foundations for attitudes, subjective norms, and perceptions of behavioural control" (p. 7).

9.2.7 Behavioural beliefs

The results of the analysis of the behavioural beliefs[1] (see Figures 9.1 and 9.2) showed that the majority of the respondents considered that ICT use in their teaching and ICT support in their schools would help and improve pupils' learning, and help teachers' teaching as well as help schools to improve. The majority of the respondents felt that using ICT and supporting ICT would "enrich their pupils' knowledge", "help them communicate with colleagues in other schools", "help their schools to implement other innovations", and "support the communication of their schools with other schools". Many of the beliefs correlated with either the teachers' intention and behaviour to use ICT or with head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT.

These results show that teachers would use more ICT and the education executives would support the uptake of ICT in their schools more if they believed that ICT would be beneficial for the students and their school. The importance of these beliefs is in line with earlier studies. For example, Preston et al., (2000) found that teachers believed that using ICT would help and improve pupils' learning as well as help them to improve their teaching. In addition, the study of Czerniak (1999), which used the Theory of Planned Behaviour to investigate teachers' intention to use educational technology in their teaching found similar behavioural beliefs with those identified in this study.

9.2.8 Normative beliefs

Normative beliefs (see Figures 9.1 and 9.2) provide the framework for subjective norm, and they are formulated by whether significant others think a person should or should not engage in a behaviour, using a scale of 1-7 (e.g. "My head teacher thinks that: I should (7)-I should not (1) use ICT in my teaching"), and by a person's motivation to

[1] For each of the 34 behavioural beliefs of this study two groups of items were designed, one a personal belief about the connection between the consequence and performance of the behaviour (behavioural belief strength) and the other, an evaluation of the consequence (outcome evaluation). For example: "Using ICT in my teaching during the next three months will enrich my pupils' knowledge: extremely unlikely/extremely likely", (behavioural belief strength), "Enriching my pupils' knowledge is: extremely bad/extremely good" (outcome evaluation).

comply with the wishes of these important others (e.g. "Generally speaking, how much do you want to do what your head teacher thinks you should do? not at all (1)-very much (7)") (Ajzen, 1985).

The current research showed that teachers felt a positive pressure to use ICT in their teaching from their head teacher, district officer and school counsellor and were strongly motivated to comply with them. In addition, the Pearson correlation results showed that these three persons positively influenced teachers' intention to use ICT. Moreover, each group of executives was influenced by the other two to support the uptake of ICT in their schools. Finally, the intention and behaviour of all the groups was also influenced by other groups, such as the students, the parent's association, as well as universities and the ministry of education. These findings are very important to our understanding of the support of the uptake of ICT in schools as they provide evidence that each group of the educators perceive social pressure from the other educators to support the uptake of ICT in their schools. These results confirm Fullan's theory (see Chapter 2) as they provide evidence that the initiation and implementation phases of innovation in schools involve complex process that involve various educators at different levels of the educational system. It is important to note that the 72 Greek primary schools of this study introduced ICT in their teaching through their voluntary involvement in projects which aimed to introduce ICT in teaching. Among the educators that involved in these projects were teachers, head teachers, district officers and school counsellors, the Ministry of Education, and parents associations. As we have seen in Chapter 1 these persons/organisations play an important role in centralised educational system. Therefore, one can expect to see some of these normative beliefs to relate with teachers' intention to use ICT in teaching and head teachers', district officers' and school counsellors' intention to support the uptake of ICT in their schools. It is possible that the data regarding the normative beliefs of teachers' intention to use ICT and executives of education intention to support the uptake of ICT collected from other countries would result in different persons/organisations.

The above findings are in line with those of other studies. For example, Czerniak et al., (1999) found that teachers felt a positive pressure to use educational technology in their teaching from their school administrators, students, other teachers and parents. Moreover, Karahanna et al., (1999) found that company executives were those that influenced the most the intention of the initial users to use ICT. On the other hand, the

same study also found that friends influenced significantly the users to use computers, a finding that was not found in the current research. In general, the normative beliefs of this study suggest that teachers are more likely to use ICT frequently in their teaching when they believe that important persons/organisations (e.g. school administrators, pupils) think they should use it. In addition, the head teachers', district officers' and school counsellors' normative beliefs of this study indicate that the influence of the most significant persons and organisations (e.g. head teachers, parents' association, Ministry of Education) leads to a high intention to support the uptake of ICT in schools as well as the actual support itself.

9.2.9 Control beliefs

As we have seen in Chapters 6 and 8 the control beliefs identified in this study were those related to a) software, hardware and technical assistance, b) support from specific persons/organisations (e.g. teachers, school administrators, Ministry of Education) and c) financial support, training opportunities and curriculum and time issues[1]. The control belief results showed that the majority of teachers' beliefs scores were high, reflecting the high degree of control they felt over the use of ICT in their teaching (see Section 9.2.6). In addition, many of the control belief scores of the education executives (i.e. head teachers, district officers and school counsellors) were very high, which means that these people believed that specific control factors would be available to enable them to support the uptake of ICT in their schools. Among the most important control beliefs for all groups of educators were "my pupils will want to use ICT", "there are enough connections to the Internet" and "we have a sufficient number of computers and peripherals". Some of these control beliefs (e.g. sufficient number of computers, enough classroom time) correlated with either respondents' intention or behaviour. This means that as teachers control of their ICT use as well as education executives control of their support of the uptake of ICT increases so does teachers' intention to use ICT, and education executives' intention to support the uptake of ICT in their schools.

[1] Two different items were used with respect to each control factor. These were the item of control belief strength (e.g. "I expect that sufficient number of computers and peripherals (e.g. printer) will be available at my school during the next three months: strongly disagree (1)-strongly agree (7)) and the item of control belief power (e.g. "The availability of sufficient number of computer and peripherals (e.g. printer) at my school during the next three months would make it: much more difficult (1)-much easier (7) for me to use ICT in my teaching). According to Ajzen (2002), "examination of the average strength and power of the different control beliefs provides a picture of the factors that are viewed as facilitating or impeding performance of the behaviour" (p. 13).

As discussed in the literature review (see Chapter 2), many of the factors identified in this study (e.g. computers, software, training) are among those that might hinder the use of ICT in schools. For instance, in a study conducted by the International Association for the Evaluation of Educational Achievement (IEA) (Pelgrum, 2001), on the use of computers in schools in 26 countries among other issues, it was also found that lack of enough computers and inappropriate software were considered to be two of the most serious problems for teachers in using ICT in their teaching. In addition, in the recent review of the literature on the uptake of ICT in schools (Jones, 2004) it was noted that the lack of time as well as the lack of sufficient training opportunities on the pedagogical use of ICT, were two of the barriers for teachers to use ICT in their teaching. Therefore, the availability of these control factors in schools might reduce the number of teachers who do not use ICT in their teaching and would increase existing ICT teachers' intention to use ICT in their teaching more often. It is important to note that this study was conducted in 2002, where the uptake of ICT in Greek schools was lower than the uptake in schools in other developed countries (e.g. England, U.S.A.). At that time there was no appropriate policy which recommended or paid for appropriate hardware, software, training or support. The majority of Greek schools did not have computers for teaching and administrative purposes and therefore, teachers had no strong encouragement from their schools to use ICT in their teaching. However, the teachers of this study had received more support than other teachers that did not use ICT due to their participation in projects. Therefore, they believed that specific control factors would be available to enable them to use ICT in teaching or to support the uptake of ICT in their schools. The control beliefs of this study provide useful information about the opportunities and resources that are viewed as important factors in teachers' intention to use ICT in their teaching. This finding would encourage the Greek Ministry of Education to focus on teachers' control beliefs. Future studies should identify and measure the control beliefs among teachers located in schools lacking the appropriate resources and opportunities to use ICT in their teaching.

The results in Chapter 6, also showed that teachers believed that "head teacher', district officer' and school counsellor' support" would facilitate them to continue to use ICT in their teaching and this belief correlated with their intention. These control beliefs suggest that head teachers, district officers and school counsellors can act as leading actors for change in their schools by creating a supportive environment that encourages teachers to

use ICT in their teaching. According to previous studies (e.g. see Granger et. al., 2002; Fullan, 1992; Pelgrum and Plomp, 1991; 1993; Pelgrum, 2001; Pelgrum and Anderson, 2001) when these educators supported their schools in having the appropriate resources and opportunities that relate to ICT use, teachers were more likely to use ICT in their teaching, which would then lead to an increased level of the uptake of ICT in schools. Otherwise, according to Akker et al., (1992), the obstacles and the problems related to ICT in teaching are likely to remain and the uptake of ICT continue to be low. In the case of the research described in this thesis, the support provided to the Greek schools was due to their participation in various projects regarding the introduction of ICT in teaching. The policy of these projects was to support schools in various issues such as hardware, software and training.

Moreover, the results showed that each education executive (i.e. head teacher, district officer and school counsellor) believed that the support of the other two executives as well as the support of the teachers would facilitate the uptake of ICT in their schools. This finding is consistent with Fullan's theory (see Chapter 2) that the successful and effective initiation and implementation of each innovation depends on the support, cooperation and involvement of head teachers, administrators, counsellors and teachers. This implies that there is a need for communication and cooperation between the groups within the school community. According to the Social Interaction Model (Havelock and Havelock, 1973) a good channel of communication between the members of different schools and between schools and other organisations is needed during the introduction and implementation of changes. In other words, this model implies that communicating and the communication process are very important and influence other educators in the process of leading to a change. In summary, the findings of this study regarding the control beliefs suggest that teachers may use ICT more in their teaching and school administrators may support the uptake of ICT more in their schools if they believe that they have the appropriate resources (e.g. enough computers) and opportunities (e.g. training, time).

The results of this study showed that attitudes towards the behaviour, subjective norm and perceived behavioural control had a significant effect on teachers' intention to use ICT in their teaching, as well as on head teachers', district officers' and school counsellors' intention to support the uptake of ICT which in turn had a significant influence on actual behaviour. In addition, head teachers, district officers and school

counsellors through the normative and control beliefs contributed to the formation of the teachers' perceived subjective norm and perceived behavioural control and therefore influenced indirectly the intention and behaviour to use ICT in teaching.

According to Ajzen (1991, 2001) the attitude toward the behaviour, subjective norm and perceived behavioural control as well as behavioural, normative, and control beliefs people hold about performance of a given behaviour are influenced by a wide variety of cultural, personal, and situational factors. In addition, they may be affected by the physical environment, the social environment, exposure to information, as well as such broad dispositions as values and prejudices. Given this, it is important to realise that the beliefs of teachers, head teachers, district officers, and school counsellors as well as their attitude toward the behaviour, subjective norm and perceived behavioural control in this study may be affected by the centralised Greek educational system. For instance, as we have seen in Chapter 1 (see Section 1.2), among the persons/organisations who play an important role in the administration are the Ministry of Education, the Pedagogical Institute, district officers, school counsellors and head teachers. The results presented in Chapter 6 (see Section 6.3.5) showed that the above persons/organisations were among these that were included in teachers' normative beliefs regarding the intention and behaviour to use ICT in teaching. In addition, the support of these persons/organisations was one of the control beliefs that teachers believed would facilitate the use of ICT in their teaching. In countries which have had a long history of introducing ICT in schools there may be different people who influence teachers' uptake of ICT. For instance, in England the National Association of Advisers and Computing Inspectors (NAACE), British Educational and Communications Technologies Agency, the British Computer Society, friends, the ICT co-ordinator and other ICT professionals may be included in the normative and control beliefs of teachers.

At this point it is worth mentioning another finding that reflects the Greek context. As we have seen in Chapter 6 (see Section 6.3.5), the private computer companies (one of the normative beliefs) were not correlated with teachers' intention and behaviour to use ICT in teaching. This may be due to the nature of the educational system culture. As we have seen in Chapter 1 (see Section 1.2), education for all levels in Greece is free, therefore it might be possible that this has created a reluctance from the public to trust the role of private companies in the education.

Moreover, since district officers and school counsellors are employees of the Ministry of Education, they were expected to follow the Ministry's policy concerning ICT. Since, there was also pressure from senior administrators in the Ministry on district officers and school counsellors to support the uptake of ICT, all of them were expected to be involved in the pilot projects. This may mean that the structure of the Greek educational system influences the results of this study. In addition, as we have seen in Chapter 8 (see Sections 8.3.2 and 8.3.3) district officers' and school counsellors' intention to support the uptake of ICT was related to their attitudes toward the behaviour. May be these attitudes were affected by the new policy of the Greek Ministry of Education towards the support of the uptake of ICT in primary schools. Therefore, we may find differences in the variables of the Theory of Planned Behaviour between countries where all the curriculum is led from the Ministry of Education including books and other resources compared with countries where teachers choose their own materials.

9.2.10 Comparison of the Theory of Reasoned Action and Theory of Planned Behaviour

As we have seen in Chapter 4 (see Section 4.2), one of the objectives of this study was to compare the predictive validity of the Theory of Reasoned Action and Theory of Planned Behaviour in predicting teachers' ICT use in teaching and head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools. For this reason the results that were presented in previous sections (see Sections 9.2.3-9.2.9) were discussed in relation to these two theories. As we have seen in Chapter 3 (see Section 3.5.3), the Theory of Planned Behaviour is an extension of the Theory of Reasoned Action that includes the component of perceived behavioural control as the determinant of intention, as well as the component of control beliefs which affect the perceived behavioural control. The results of this study showed that the Theories of Reasoned Action and Planned Behaviour in general did provide a framework for the prediction of intention and behaviour. However, the Theory of Planned Behaviour did account for more variance in teachers', head teachers', district officers' and school counsellors' intention as well as in head teachers' and district officers' behaviour than the Theory of Reasoned Action.

As we have seen in Chapters 6 and 7, two steps of hierarchical regression analyses were performed in order to compare the predictive validity of these two theories on teachers', head teachers', district officers' and school counsellors' intention and behaviour. The

first step of the regression analysis was conducted in order to assess the predictive validity of the Theory of Reasoned Action variables (i.e. attitude and subjective norm) on intention and behaviour. The second step of regression analysis tested whether the Theory of Planned Behaviour variables (i.e. attitude and subjective norm and perceived behavioural control) could explain additional variance in intention and behaviour to that explained by Theory of Reasoned Action. Table 9.1 presents a summary of the results of the predictive validity of these two models for the intention and behaviour of each sample of this study. The prediction of the intention and behaviour is assessed by inspecting the "Adjusted R^2" column and the contribution to the prediction of the independent variables is assessed by inspecting the "beta" column.

Inspection of Table 9.1 shows that the Theory of Planned Behaviour statistically significantly increases the explained variance in intentions to use ICT in teaching as well as intentions to support the uptake of ICT in schools than the Theory of Reasoned Action. Most specifically, Table 9.1 shows that when the Theory of Planned Behaviour was added to the regression analysis, the explained variance of teachers' intention to use ICT in their teaching increased from 42.1% to 55.2% (see Adjusted R Square columns in Table 9.1). Table 9.1 shows that the TPB explained an additional 3% (Adjusted R^2=21.7%) of the variance in head teachers' intention to that explained by the Theory of Reasoned Action (Adjusted R^2=17.3%). Additionally, the TPB increased the amount of explained variance from 52% to 55.6% in district officers' intention to support the uptake of ICT in their schools. Finally, Table 9.1 shows that the Theory of Planned Behaviour increased the amount of explained variance from 22.7% to 28.5% in school counsellors' intention to support the uptake of ICT in their schools. These results show that the Theory of Planned Behaviour led to a statistically significant increment in the amount of variance explained in intention in all samples. Therefore, the Theory of Planned Behaviour in this study was found to be better than the Theory of Reasoned Action in predicting teachers', head teachers', district officers' and school counsellors' intention.

Table 9.1 – Regression analysis of the TRA and TPB variables on intention and behaviour for the teachers, head teachers, district officers and school counsellors.

	Theory of Reasoned Action			Theory of Planned Behaviour		
	Variables	**Beta**	**Adjusted R^2**	**Variables**	**Beta**	**Adjusted R^2**
Teachers' intention	Attitude toward the behaviour	.497	42.1%	Perceived behavioural control	.449	55.2%
	Subjective norm	.231		Attitude toward the behaviour	.304	
				Subjective norm	.128	
Teachers' behaviour	Intention	.309	9%	Intention	.194	10.1%
				Perceived behavioural control	.169 **(ns)**	
Head teachers' intention	Attitude toward the behaviour	.300	17.3%	Perceived behavioural control	.281	21.7%
	Subjective norm	.180 **(ns)**		Attitude toward the behaviour	.279 **(ns)**	
				Subjective norm	.036 **(ns)**	
Head teachers' behaviour	Intention	.357	11.5%	Intention	.248	16%
				Perceived behavioural control	.194	
District officers' intention	Subjective norm	.426	52%	Attitude toward the behaviour	.350	55.6%
	Attitude toward the behaviour	.371		Perceived behavioural control	.300	
				Subjective norm	.230 **(ns)**	
District officers' behaviour	Intention	.467	19.9%	Perceived behavioural control	.383	26.8%
				Intention	.219	
School counsellors' intention	Attitude toward the behaviour	.352	22.7%	Attitude toward the behaviour	.302	28.5%
	Subjective norm	.288		Perceived behavioural control	.299	
				Subjective norm	.176 **(ns)**	
School counsellors' behaviour	Intention	Not correlated with behaviour	-	Intention	Not correlated with behaviour	6.7%
				Perceived behavioural control	.296	

Notes. **ns**: not significant

The results of the regression analysis of this study in Table 9.1 also show that the component of the Theory of Planned Behaviour produced statistically significant increments in the amounts of variance explained in head teachers' and district officers' behaviour to support the uptake of ICT in their schools. More specifically, the results in Table 9.1 show that the TPB was able to explain an additional 4.5% (Adjusted R^2=16%) of the variance in head teachers' behaviour to support the uptake of ICT in their schools to that explained by TRA (Adjusted R^2=11.5%).

Moreover, entering the TPB in district officers' regression model produced a further (i.e. 4.6%) statistically significant increment in the amount of variance explained in behaviour to support the uptake of ICT. Therefore, the Theory of Planned Behaviour increased the explained variation of head teachers' and district officers' behaviour to support the uptake of ICT in their schools in comparison to the Theory of Reasoned Action. Although the results of this study provide empirical support for the TPB in predicting teachers' intention, the TPB resulted in a non statistically significant increase (1%) in variance in teachers' behaviour to use ICT. This finding is discussed in Section 9.5.

Finally, the results of school counsellors' Pearson correlation showed that there was no significant correlation between intention and behaviour. Therefore, this result did not enable a comparison to be made between the Theories of Reasoned Action and Planned Behaviour in predicting school counsellors' behaviour to support the uptake of ICT in their schools. This finding is explained further in Section 9.5.1.

As we have seen in Chapter 4 (Section 4.2) this study was designed not only to investigate the direct measures of the Theory of Reasoned Action (i.e. attitude and subjective norm, intention) and Theory of Planned Behaviour (i.e. attitude, subjective norm and perceived behavioural control) but also to identify and to measure teachers' beliefs regarding the use of ICT in their teaching and head teachers', district officers' and school counsellors' beliefs regarding the support of the uptake of ICT in their schools. Using the TRA in this study it was possible to identify the behavioural and normative beliefs which provided useful information about the factors that might be involved in intention and behaviour. On the other hand, using the Theory of Planned Behaviour in this study it was able to identify the control beliefs. As we have seen in Chapter 3 (see Section 3.5.1) these control beliefs have to do with the perceived

presence of factors that can facilitate or impede performance of human behaviour. In this study these control beliefs in combination with the behavioural and normative beliefs provide more information to help us to explain and understand better the factors that are related with the use of ICT in teaching and the support of the uptake of ICT in schools.

In summary, the results of this study provide evidence that the Theory of Planned Behaviour is a better model for predicting teachers', head teachers', district officers' and school counsellors' intention as well as head teachers' and district officers' behaviour compared to the Theory of Reasoned Action. However, the results of the regression analyses showed that in many cases the amount of variance explained by the present data was moderate and presumably not too large (e.g. the explained variance in teachers' behaviour was 9%). It is important to note that similar findings regarding the amount of the explained variance (i.e. moderate and not too large) have been obtained in the majority of studies that used the Theory of Planned Behaviour (see Armitage and Conner, 2001). This does not mean that we must reject the Theory of Planned Behaviour. It means that the human behaviour is a very complex issue and as is discussed in Section 9.5.1, many researchers have suggested that a number of other factors may influence the relationship between the Theory of Planned Behaviour variables and behaviour. However, it was not the aim of this study to investigate whether other factors would add statistical significance to the prediction of intention and behaviour. Therefore, more research is needed to identify other factors that better predict the use of ICT in teaching as well as the support of the uptake of ICT in schools. The results explained by the Theory of Planned Behaviour in this study have a number of implications for research which are discussed in Section 9.5.1.

9.3 THE SIGNIFICANCE OF THE STUDY

The main significance of this study to ICT in education is that it is the first one in the field that investigates the factors that affect head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in primary schools and the influence which these persons have on teachers' intention and behaviour to use ICT in teaching. Most specifically, no previous research has actually examined together the factors that influence the support of the uptake of ICT across different educators (i.e. teachers, head teachers, district officers and school counsellors) in local settings. By explaining the factors that influence each category of educators it helps us not only to

understand better the process of ICT innovation in local settings, but also provides useful information about how to support the uptake of ICT in schools.

Another contribution of this study in ICT in education is that it successfully applied the theories (e.g. TRA and TPB) to investigate ICT use in teaching and the support of the uptake of ICT in schools, which differs from those theories used in previous studies. To my knowledge, the current study is the first one that has used the Theories of Reasoned Action and Planned Behaviour to investigate both primary teachers' intention to use ICT in teaching and behaviour in using ICT. A detailed investigation of the literature in ICT in primary education identified no other studies that examined these two issues together (see Chapter 3). The study that was conducted by Czerniak et al., (1999), investigating science teachers' intentions to use educational technology and behaviour in using educational technology used only the Theory of Planned Behaviour. The study that was conducted by Czerniak et al., (1999), investigating science teachers' intentions to use educational technology and behaviour in using educational technology used only the Theory of Planned Behaviour. Furthermore, their research investigated only the influence of perceived behavioural control on intention and not on behaviour. This is in contrast with the Theory of Planned Behaviour, which claims that perceived behavioural control is equally important in predicting peoples' behaviour.

This research is also the first attempt to use the combination of attitudes towards computer items as well as the Theories of Reasoned Action and Planned Behaviour in education to investigate the factors that influence head teachers, district officers and school counsellors to support the uptake of ICT in schools. Previous studies did not investigate the effects of attitudes towards computers as well as attitudes towards the behaviour and influence of subjective norm and perceived behavioural control on actual behaviour regarding the support of the uptake of ICT in schools (see Chapters 2 and 3). In addition, no previous research using this specific theoretical framework has actually identified the behavioural, normative and control beliefs of head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools. Previous studies, which measured only head teachers' attitudes towards computers (e.g. Pelgrum and Plomp, 1993; Pelgrum and Anderson, 2001) either examined the relationship between head teachers' attitudes towards computers with the level of the uptake (e.g. Cox et al., 1988; Pelgrum, 1993) or the differences and the relationships of demographic variables in teachers (e.g. Shapka and Ferrari, 2003) and

students' attitudes towards computers (e.g. Shashaani and Khalili, 2001). Therefore, this study extends previous findings about the uptake of ICT in schools by using the most recent theories of social psychology.

Finally, measures of knowledge about ICT, attitudes towards computers as well as intention, attitude toward behaviour, subjective norm and perceived behavioural control for ICT use and support for the uptake of ICT were developed and tested in this study. These measures can be used by researchers for future studies to determine attitudes towards computers and the factors that influence teachers to use ICT in their teaching and head teachers, district officers and school counsellors to support the uptake of ICT in their schools. In general, building on the findings of this study, researchers can understand and explain better the factors that influence both the use and the support of the uptake of ICT in schools. These factors can also be of use to Ministries of Education, including the Greek Ministry, as well as all the individuals and organisations within education to design and develop effective programmes in order to increase the uptake of ICT in schools.

As we have seen in Chapter 1, the introduction of ICT use in Greek primary schools in general is very recent. A number of primary schools have acquired computer labs only during the last two years (2003-2004). In addition, in the last two years a teacher training programme was implementing under the administration of the Ministry of Education. This programme focuses on providing support to teachers in their attempt to use ICT in their teaching. Moreover, the new policy of the Greek Ministry of Education includes many actions related to the development of technical infrastructure (hardware provision and maintenance, provision of technical support, development of networks, development of educational software), and of human resources (e.g. support). These activities mean that the integration of ICT in teaching is currently in an early stage. In addition, in Greece no research has been conducted toward understanding and predicting teachers' intention and behaviour to use ICT in their teaching or head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT. Therefore, due to the lack of research the results of this study regarding the use of ICT and the support of the uptake of ICT in the 72 schools provide information that should be considered in designing the Greek educational policy to encourage the remaining schools to introduce ICT in teaching more effectively.

9.4 LIMITATIONS OF THE STUDY

Although this study has made a significant contribution to the area of ICT use in teaching and the support of the uptake of ICT in schools (see Section 9.5), it has some limitations that should be noted. These are mainly related to generalisability concerns.

9.4.1 The sample

The sample used in this study consisted of teachers, head teachers, district officers and school counsellors who through various pilot projects were involved in the introduction and implementation of ICT for teaching and administrative purposes in 72 Greek primary schools. As the results showed in this study, these educators had very positive attitudes towards computers and strong intentions to use ICT as well to support the uptake of ICT. Different less positive, results may be obtained if this study had also measured attitudes towards computers, intentions to use ICT and support the uptake of ICT from those educators in schools which had not made a specific commitment to use ICT in their schools. Furthermore, as has been discussed in Chapter 5, the head teachers', district officers' and school counsellors' sample consisted of a very small number of females. The composition of the sample therefore limits the gender results presented in Chapter 7, Section 7.2.1. However, this small number of women can be explained through the fact that at the end of 1990s' in Greece only a small number of women were school counsellors, district officers and head teachers.

9.4.2 Attitudes towards computers' subscales

As we have seen in Chapters 3 and 4, the 62 attitude items used in this research were validated in a number of previous studies (e.g. Loyd and Gressard, 1984; Loyd and Loyd, 1985; Heinssen et al., 1987; Selwyn, 1997; Cristensen and Knezek, 2000). In this study, these items were translated, piloted and adopted for the Greek teachers, head teachers, district officers and school counsellors. Although Cronbach's alpha was higher than 0.80, for the teachers', head teachers', district officers' and school counsellors' overall attitude results and in most of the attitude subscales, which is very good for attitude results (see DeVellis, 1991, p. 85), it was not higher than 0.65 for some of the attitude subscales which is the lower limit of Cronbach alpha required to generalise attitude results. The subscales with low Cronbach alpha were the perceived training needs of teachers, district officers and school counsellors, and the confidence, educational impact, and social impact of school counsellors. Therefore, these subscales

were the weakest component of the attitude scales and could be modified before being used in further research studies.

9.4.3 The measurement of behaviour

This study was based on teachers', head teachers', district officers' and school counsellors' self reports on their own behaviours. Self-administered questionnaires have frequently been used to measure various behaviours in the Theories of Reasoned Action and Planned Behaviour studies and generally have been found to be reliable and valid (see Ajzen, 1998, 1991, 2002). However, findings from other studies emphasise the inadequacy of the self-reporting approach. For example, a previous meta-analysis of TPB studies by Armitage and Conner (2001), showed that individuals' perceptions of their behaviour are sometimes different from their actual behaviour. Their review concluded that one might expect weaker but similar relationships if the TPB studies used more objective measures of actual behaviours, such as observation. Therefore, the results of behaviour measures in the current study may be stronger than would be found by extensive observation of practice.

9.5 IMPLICATIONS

The findings presented in this study have various implications, both for the use of the Theories of Reasoned Action (TRA) and Planned Behaviour (TPB) and the 62 attitude items towards computers in other studies as well as for the use of ICT in teaching and the support of the uptake of ICT in schools.

9.5.1 Implications for research

This study used the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) in four different samples and therefore there are many implications regarding its predictive validity. The results showed that both the TRA and TPB in general are useful theories for predicting and exploring the factors that influence teachers' intention and behaviour to use ICT in their teaching as well as head teachers', district officers' and school counsellors' intention and behaviour to support the uptake of ICT in their schools. This study also showed that the predictive validity of the TPB in general appears to be superior to that of the TRA. Including perceived behavioural control in TPB model significantly increased the explained variation in comparison to the TRA model. Therefore, these results provide further support for the TPB, adding to a

body of research that supports this theory which predicts a larger amount of variance when compared with the variance predicted by the TRA (see Ajzen, 1991; Armitage and Conner, 2001).

Approximately 51% of the variance in teachers' intention as well as 56% of the variance of district officers' intention in the present study were explained by the regression model, which is a high percentage compared with the range of other intentions explained in the previous meta-analysis reviews of the TPB[1] (see Godin and Kok, 1996; Armitage and Conner, 2001). Although the results of this study showed that the TPB predicted satisfactory levels of variance of teachers' and district officers' intention however the explained variance of the prediction of teachers' and district officers' behaviour as well as head teachers' and school counsellors' intention and behaviour was relatively low. In addition, the attitudes towards computers subscales in Chapter 7 resulted in low prediction in the regression models of the support of the uptake.

Looking at these findings, previous TRA and TPB studies as well as attitudes towards computers studies, have shown that other psychological or external variables also influence individuals' intention or behaviour and increase the prediction validity. Examples of such factors include past behaviour (e.g. Ajzen, 1991, Armitage and Conner, 2001), demographic characteristics (i.e. gender, age), personality traits (i.e. authoritarianism, need for achievement), and traditional measures of attitudes towards persons, institutions and policies (see Ajzen and Fishbein, 1980) as well as computer experience and computer accessibility (e.g. Al-Khaldi and Al-Jabri, 1998). The present study did not consider those or other variables and therefore the relatively low explained variance of the regression models imply that there are other factors which can explain intention and behaviour. Therefore, further research is required in order to examine whether other variables also affect intention and behaviour to use ICT in teaching as well as the support of the uptake of ICT in schools.

Another issue that arises from the findings of the TRA and TPB is related to the measure of the component of the perceived behavioural control. Although the results of this study provide support for the TPB in the prediction of teachers' intention, however the perceived behavioural control component resulted in a non significant increase in

[1] For example, in a meta-analysis of the TPB based on 185 studies, Armitage and Conner (2001) found that, on average, the theory variables accounted for 39% and 27% of the variance in intention and behaviour, respectively.

variance of actual use of ICT (as we have seen in Chapter 6, Section 6.3.2 this was only 1%). This small percentage in variance may mean that the TRA and not the TPB might be appropriate to predict teachers' use of ICT in their teaching (actual behaviour).

The third issue relates to the measure of school counsellors' intention. As is shown in Chapter 8 (see Section 8.3.3), school counsellors' intention did not correlate with their behaviour and therefore it was not included in the TPB regression model.

It is worth noting that the three school counsellors intentions' items that were used in this study were the same as that used for head teachers' and district officers' intention to support the uptake. As discussed in Section 8.3.3 this failure of intention to predict behaviour may reflect problems with the measurement of intentions. It might be that these items were not appropriate for school counsellors' intention. Another possible explanation is that school counsellors' intention to support the uptake of ICT may have changed over time. According to Ajzen and Fishbein (1980), intention should not change during the time between the measure of intention and behaviour. In the present study, school counsellors' intention to support the uptake of ICT was measured three months (i.e. March 2002) before the actual support (behaviour) was measured (i.e. June 2002). School counsellors may have changed their decisions to support the uptake of ICT during this period of time. Therefore, at a theoretical level, further research is required in order to understand and explain better the relationship between school counsellors' intention and behaviour.

It is also worth noting that this study found a much higher percentage of explained variance in intention in all groups than in behaviours. This is a finding that has been reported in a number of TRA and TPB meta-analysis reviews (see for example Armitage and Conner, 2001; Godin and Kok, 1996).

The final issue regarding the Theories of Reasoned Action and Planned Behaviour relates to the measure of behavioural, normative and control beliefs. On the one hand, as we have seen in Chapters 6 and 8 there were a number of beliefs that correlated with intention. These beliefs can be used by other studies in order to explain ICT use in teaching as well as the support of the uptake of ICT in schools. On the other hand, many of the beliefs in this study did not correlate with behaviour. In addition, as illustrated in Chapter 8, district officers' and school counsellors' control beliefs were unrelated to a direct measure of perceived behavioural control. Furthermore, school counsellors'

normative beliefs did not correlate with the direct measure of subjective norm. According to Ajzen (2002), the non correlation between the beliefs with the corresponding direct measures indicates that the beliefs found in the pilot study failed to identify very well the important considerations related to attitude, subjective norm and to perceived behavioural control. On this basis future applications of the TRA and TPB should include modifications to the current behavioural, normative and control beliefs or identify additional beliefs in order to obtain more significant correlations with the intention and behaviour to use ICT and support the uptake of ICT in schools.

In order to measure the attitudes towards computers, this study also revised, tested and translated into Greek a number of previous attitude items and developed a 62-item questionnaire which consisted of eight subscales (see Chapter 4, Section 4.6.1.3.1). As presented in Chapter 4 (see Section 4.6.3.1), overall this questionnaire appeared to be reliable with very high Cronbach Alpha in all four different samples. In addition, the attitude subscales correlated very well with other computer variables, such as computer knowledge, training and ICT use, providing support about the reliability of the subscales. However, as mentioned in Section 9.4.2 some of the attitude subscales, mainly in the district officers' and school counsellors' samples had low reliability (i.e. training needs, confidence, educational and social impact). On the basis of these results, researchers are encouraged to use this questionnaire with more general populations of teachers, head teachers, district officers and school counsellors in primary education in order to examine further its reliability and most specifically the reliability of these subscales which had low reliability in this study.

9.5.2 Educational implications

The present study has a number of educational implications, many of which have been discussed in the previous four chapters. This section summarises all of these. The findings from the attitudes towards computers as well as from the Theory of Planned Behaviour in this study can provide an appropriate framework for the development of specific strategies and training programmes to encourage the support of the uptake of ICT in Greek and other schools as well as for the use of ICT in teaching. Some of the implications that are suggested for Greece can be applied to other countries that have similar characteristics with the uptake of ICT in their educational systems.

The results given in Chapter 5 showed that the uptake of ICT in schools was relatively low. As we have seen in Section 9.2.1 one possible explanation was the lack of appropriate hardware and software. In addition, some schools did not have access to the Internet. This means that these schools need more available resources (e.g. hardware and software). It is likely that the availability of these resources in schools will increase the uptake of ICT. Previous studies (see Pelgrum 2001; Jones 2004) have shown that in those schools which have more ICT resources the use of ICT is higher than those with low resources. In addition, as we have seen in Chapter 2 (see Section 2.3.3.7), the results of many studies have shown that the implementation of ICT in schools depends on teachers' and head teachers' attitudes towards computers. This study showed that attitudes towards computers were found to be important in explaining head teachers', district officers' and school counsellors' support of the uptake of ICT as well as correlating with teachers' ICT use in teaching. On the basis of this, the first priority of this policy should be the creation of a school environment which has the potential to improve the positive attitudes towards computers of those educators who are already involved in the uptake of ICT and to change the attitudes of those who feel reluctant to use ICT in teaching or to support it. In order to achieve this, previous studies found that this requires more training and more knowledge and skills about computers (see Chapter 2, Section 2.3.3.7). According to Preston et al., (2000), the training programmes for inexperienced ICT teachers "should attempt to address teachers' perceptions concerning ease of use and usefulness" (p. 68). More specifically, they claimed that training programmes "should focus on the advantages of using ICT for pupils' motivation, learning, and interest in lessons" (p. 68). In addition, the Ministry of Education should financially help educators to purchase a computer at home and to encourage them to use the computer for personal or educational purposes. Other countries, such as England, have introduced schemes (e.g. see "Computers for Teachers Initiative", Becta, 2001) that provide free, or partially funded, computers for teachers at home. According to Becta (2003), this initiative allowed teachers to become more comfortable in using ICT both at home and at school.

9.5.2.1 Implications for teachers

The results of this study showed that feelings of control over ICT use (i.e. perceived behavioural control) was the most important factor that related to teachers' intention and in turn intention related to behaviour. This finding suggests that even if teachers have

positive attitudes towards using ICT in their teaching they will not use ICT unless they also perceive that they have control over their use of ICT. Therefore, increasing teachers' feelings of control over their use of ICT is likely to generate the greatest increase in their intention to use ICT in their teaching. This may be done by increasing the availability of those support services and resources that facilitate teachers' use of ICT in their schools. As this study showed, control beliefs related to the availability of appropriate resources (e.g. hardware and software) and to support provided from a number of persons and organisations (e.g. head teacher, Ministry of Education).

The second important factor facilitating teachers' intention to use ICT in their teaching was their attitudes toward the use of ICT in teaching. The implication of this finding is that in order for teachers to use ICT more often in their teaching they need to have positive attitudes towards using ICT in teaching. In particular, teachers need to be convinced that ICT will be beneficial for them and their students. For example, the results of the behavioural beliefs in this study showed that teachers believed that the use of ICT in their teaching will enrich their pupils knowledge, make the lessons more interesting, enjoyable and diverse for them. Therefore, since perceived behavioural control and attitudes towards the behaviour in this study was shown to be related to teachers' intention, training programmes about the uptake of ICT should be developed to increase teachers' perception of the control over their use of ICT as well as to improve teachers' attitudes towards the use of ICT in their teaching.

9.5.2.2 Implications for head teachers, district officers and school counsellors

The results of this study showed that district officers' and school counsellors' intention was related to their positive attitudes toward the behaviour. As we have seen in this study these persons are responsible for the implementation of the educational policy of the Ministry of education in their districts as well as being responsible for the administration and scientific supervision of a large number of schools. Given this, the implication of this result is that in order that these district officers and school counsellors support the uptake of ICT in their schools they need to have very positive attitudes towards supporting the uptake of ICT and to demonstrate in their schools the advantages of using ICT in teaching for pupils, teachers and schools. Therefore, in order to improve the uptake of ICT in schools we need to improve district officers and school counsellors' attitudes towards the support of the uptake in schools.

The results of this study also showed that perceived behavioural control was the second most important component that related to district officers and school counsellors intention to support the uptake of ICT. The perceived behavioural control was also the most important factor in the regression analysis concerning their behaviour. In addition, the results of this study showed that perceived behavioural control was the single most important factor that influenced head teachers' intention to support the uptake of ICT in their schools. This important finding suggest that, the more resources (e.g. hardware, software) and opportunities (e.g. time, training programmes) head teachers, district officers and school counsellors think they possess and the fewer problems regarding ICT (e.g. lack of enough connections to Internet) they have, the greater should be their perceived control over the support of the uptake of ICT in their schools. The practical implication that can be drawn from this finding is that successful support of the uptake of ICT in schools should need not only head teachers, district officers and school counsellors to have very positive attitudes towards the support, but also they need to believe that they have a lot of control over the support of the uptake of ICT.

9.5.2.3 Implications for training

The findings of this study have shown that the attitude toward the behaviour was the most important factor in district officers' and school counsellors' intention to support the uptake of ICT in their schools as well as the second most important factor in teachers' intention to use ICT in their teaching. This finding suggests that in order to improve the use of ICT and the support of the uptake in schools' training programmes should increase teachers', district officers' and school counsellors' attitude toward the use of ICT in teaching and the support of the uptake of ICT in schools. According to Ajzen (2001), the influence of attitude toward the behaviour can be achieved through the behavioural beliefs. Given this, training programmes which attempt to improve teachers', district officers' and school counsellors' attitudes towards the behaviour should address the behavioural beliefs identified in this study and related to ICT use in teaching and the support of the uptake of ICT in schools. As we have seen in Chapters 6 and 8, these behavioural beliefs concerning ICT use and the support of the uptake related to many advantages for pupils, teachers and schools. Some examples of behavioural beliefs which training programmes should demonstrate are presented in Table 9.2. It is worth noting that these examples were some of the behavioural beliefs which

significantly correlated either with intention or behaviour to use ICT in teaching and support the uptake of ICT in schools.

Table 9.2 – Focus of training regarding the improvement of teachers', head teachers', district officers' and school counsellors' attitudes towards the uptake of ICT in schools.

Advantages for pupils	Advantages for teachers	Advantages for schools
Enrich pupils' knowledge.	Help teachers organise their lessons better.	Help school's better organisation.
Help pupils learn more easily.	Make lessons more diverse.	Help school to implement other innovations.
Make the lesson more fun for the pupils.	Make the lessons more enjoyable.	Support the communication of school with other schools in Greece and abroad.
Increase pupils' interest in learning.	Allow teachers greater access to a computer for personal and professional use.	
Stimulate creativity in pupils.	Give teachers more prestige.	
Help pupils work with one another.		

Moreover, since perceived behavioural control in this study was shown to be related to intention and behaviour, training programmes about ICT should be developed to increase teachers' perception of control over the use of ICT as well as head teachers', district officers' and school counsellors' perception of control over the support of the uptake of ICT in their schools. According to Ajzen (2001), the perception of control is related to control beliefs. These beliefs provide useful information about the opportunities and resources that are viewed as important factors in performance of behaviours. This study identified and measured 20 control beliefs. These control beliefs have to do with the perceived presence of factors that can facilitate or impede teachers to use ICT in their teaching and head teachers, district officers and school counsellors to support the uptake of ICT in their schools. For instance, the results of this study showed that teachers felt that the "sufficient number of computers", "an appropriate computer room", "enough time for lessons", "enough connections to the Internet", "support from head teachers, district officers and school counsellors", "the Ministry of Education", "the Pedagogical Institute" and "the local authorities (e.g. Municipality, Prefecture)" would make it much easier for them to use ICT in their teaching. Therefore, training programmes should address the needs of the teachers, head teachers, district officers and school counsellors in accordance with the control beliefs identified in this study. In particular, training programmes should provide them with information about the

available facilities, opportunities and conditions that facilitate successful support of the uptake and use of ICT. In addition, this training should provide practical information on how head teachers, district officers and school counsellors could support the uptake of ICT in schools and how teachers use ICT in their teaching.

9.5.2.4 Implications for policy

Since this study showed that perceived behavioural control is an important finding, the first priority in educational policy aimed at increasing the uptake of ICT in schools is making teachers', head teachers', district officers and school counsellors feel that they have a lot of control over the use of ICT in teaching and the support of the uptake of ICT in their schools. This may be done by increasing the availability of appropriate resources in schools and providing a number of opportunities (e.g. training programmes, informal meetings) for teachers, head teachers, district officers and school counsellors.

In the present study, general attitudes towards computers, as well as attitudes towards the use of ICT in schools, and the support of the uptake of ICT in schools were found to be related to teachers', head teachers', district officers' and school counsellors' intention. This suggests that the second priority of educational policy should target the improvement of educators' attitudes towards the uptake of ICT in schools. Information about the behavioural beliefs that determine the attitudes towards the use of ICT and the support of the uptake of ICT in schools can be used to develop pre-service and in-service education courses in order to improve teachers' and administrators (e.g. district officers) attitudes towards the uptake of ICT in schools.

Finally, the third important finding of this study was the subjective norm. In particular, the perceived normative expectations of several persons (e.g. teachers, head teachers) and organisations (e.g. Ministry of Education, parents' association) were found to be statistically significant considerations in teachers' intention to use ICT in their teaching and district officers' and school counsellors' intention to support the uptake of ICT in their schools. Therefore, a positive impact on the uptake of ICT can be expected if educational policy about the ICT in schools include more effectively all these persons and organisations. The educational policy should create the appropriate structures in an educational system in order that all of these persons/organisations work and co-operate closely to design a range of activities that can help the uptake of ICT in schools. Working in an environment with supportive structures is more likely to bring a change in

behaviour (see Fullan, 2001). A recent literature review on barriers to teachers' use of ICT, conducted by Becta (Scrimshaw, 2004) suggests that "teachers may gain support in linking with their peers both within and outside their local community through the use of electronic networks and forums. These benefit teachers by providing opportunities for the dissemination of good practice, development of confidence and motivation, and better access to resources and research" (p. 6). More specifically, support from head teachers, district officers and school counsellors may contribute to teachers perceiving that they have significant control of ICT use. In addition, the construction of a nurturing and supportive environment between the head teachers, district officers and school counsellors in each district in order to overcome their common problems will contribute to their perception of control over the support of the uptake of ICT in their schools.

9.6 RECOMMENDATIONS FOR FURTHER RESEARCH

The limitations as well as the findings of this study have indicated the following areas for further research.

- Future research should include more female head teachers, district officers and school counsellors in order to investigate possible gender differences in their attitudes towards computers. In addition, future research could use the Theories of Reasoned Action and Planned Behaviour to investigate teachers' intention to use ICT and head teachers', district officers' and school counsellors' intention to support the uptake of ICT from schools that do not yet use ICT for teaching and administrative purposes. The results might lead to a better understanding of the reasons why these schools do not use ICT.

- This study was conducted in 72 Greek primary schools where ICT was used for teaching and administrative purposes. These schools introduced and implemented ICT through their voluntary participation in various projects. The results of this study showed that the introduction of ICT use in Greek schools was very recent and the use was low. In addition, as we have seen in Chapter 1 (see Section 1.2), the Greek educational system is centralised. Whether or not these findings can be generalised beyond the schools surveyed is unknown. Given these characteristics of this study, further research is needed to examine whether the present findings regarding the attitudes towards computers, teachers' intention to use ICT and head teachers', district officers' and school counsellors'

intention to support the uptake of ICT generalises to other levels of ICT use and other countries with decentralised educational systems.

- Future research should be designed to investigate whether intention and behaviour of ICT use in teaching as well as the support of the uptake of ICT in schools are influenced by other psychological or external factors (e.g. past behaviour) and if these improve our ability to increase the percentage of the explained variance in regression models.

- In future studies, more objective measure of behaviour (e.g. teachers' ICT use in teaching and head teachers', district officers' and school counsellors' support of the uptake of ICT in their schools), should be incorporated to improve the validity of the behaviour measure. For example, in addition to behaviour questions that were used in this study (see Chapter 4), head teachers, district officers and school counsellors could keep a diary in order to record their activities related to the support of the uptake of ICT in their schools over a period of time.

- Future research should work on providing stronger evidence about the validity of the attitudes towards computers subscales that were found to have low internal consistency reliability (i.e. training needs, confidence, educational and social impact). Most specifically, new items may be needed to increase the Cronbach Alpha value of these subscales. Also, future studies should develop other attitude subscales that relate to ICT changes in schools nowadays, for instance attitudes towards the Internet in primary education as well as attitudes towards the use of white boards. In addition, further research is needed in organising the eight attitudes subscales of this study into the three attitude dimensions (i.e. cognitive, affective, behavioural) presented in Chapter 3, Section 3.3.

- This study revealed the factors that influence teachers to use ICT in their teaching and head teachers, district officers and school counsellors to support the uptake of ICT in their schools. Future research could use the Theories of Reasoned Action and Planned Behaviour to examine the beliefs that pupils have for ICT use in their teaching (i.e. behavioural beliefs), the persons/organisations that influence or support them to use ICT (i.e. normative beliefs) and the factors that will facilitate them to use ICT in their schools more effectively (i.e. control

beliefs). In addition, future research using these theories to investigate the attitudes towards behaviour, subjective norm and perceived behavioural control of all of these persons/organisations (such as officers of Ministry of Education and the Pedagogical Institute, Universities) in Greece that are involved in the uptake of ICT in schools could be useful to show the influence of other educators on the uptake of ICT in schools.

- Finally, future work in collecting longitudinal data to examine at particular times if there are changes in attitudes, subjective norms and perceived behavioural control and if these changes lead to different levels of explained variance of intentions and behaviours to use ICT in teaching as well as to support the uptake of ICT in schools would provide further important evidence about how these factors might influence the use of ICT over time.

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APPENDICES

APPENDIX A1: TEACHER QUESTIONNAIRE

CONFIDENTIAL

CODE

Teacher Questionnaire

The main objective of this questionnaire is to know the current state of ICT in Greek primary schools. The questionnaire is divided into three parts. In Part 1 you are asked to provide some basic information about yourself and your experience of computers. Part 2 and 3 aims to elicit more detailed information by asking you to indicate the extent to which you agree or disagree with a number of statements provided.

Part 1

1. Personal Information

1.1. Name: _____

1.2. Sex: Male ☐ Female ☐

1.3. Age: under 25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ over 55 ☐

1.4 Name of the school: _____

1.5 Contact address: _____

1.6 Contact fax / telephone number: _____

1.7 E-mail address: _____

1.8 Degree (s) and qualification (s):

Pedagogical Academy ☐ Faculty of Primary Education ☐

Eksomiosi ☐ Maraslio Didaskalio of Primary Education ☐

Other degree ☐ Please specify: _____

Master ☐ Please specify: _____

PhD ☐ Please specify: _____

Other ☐ Please specify: _____

1.9 Years of teaching experience: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ over 25 ☐

1.10 How long have you been a teacher at this school? _____

1.11 What grade (s) do you teach? _____

1.12 In which grade (s) do you use computers? _____

1.13 How many students are in your classroom (s)? _____

2. *Computer experience and knowledge*

2.1 Please tick one box on each line.

	none	a little	average	quite a lot	a lot
How much do you know about computers?	1	2	3	4	5
	no good	**weak**	**average**	**quite good**	**very good**
How good are you at using programs?	1	2	3	4	5

2.2 Please indicate your knowledge and expertise in computers. Please indicate by drawing a circle round the appropriate number.

I Know...	**none**	**a little**	**quite a lot**	**a lot**
1. The difference between mainframe computers and personal computers.	1	2	3	4
2. The difference between the operating system and an application package.	1	2	3	4
3. The trends in hardware development in the past 30 years.	1	2	3	4
4. Criteria to judge the quality of a printer.	1	2	3	4
5. What "file extensions" are.	1	2	3	4
6. What a "loop" means in programming.	1	2	3	4
7. What a "relational database" is like.	1	2	3	4
8. What a "bit" is defined as.	1	2	3	4
9. The difference between "RAM" and "ROM".	1	2	3	4
10. The difference between a word processor and a desktop publishing programme.	1	2	3	4
I can...	**not at all**	**a little**	**well**	**very well**
1. Load software.	1	2	3	4
2. Format disks.	1	2	3	4
3. Check virus.	1	2	3	4
4. Manage files.	1	2	3	4
5. Connect computer to external devices.	1	2	3	4
6. Use help-facilities.	1	2	3	4
7. Create sub-directories.	1	2	3	4
8. Send an email.	1	2	3	4
9. Search the World Wide Web.	1	2	3	4
10. Download files from email or World Wide Web.	1	2	3	4

3. *Personal use of computers*

3.1 Do you have access to a computer for personal use outside of school?

YES ☐ NO ☐ If NO, please move on to section 4.

3.2 Who owns the computer you use outside of school (e.g. you, your husband/wife/partner)? _____

3.3 Please indicate which type of computer you use:

Desktop PC		**Laptop**		**Desktop Apple Mac**	

3.4 Please indicate **how often you use** computers for personal purpose outside of your workplace. Please answer each of the following sentences by circling the appropriate response.

	never	about an hour each month	about an hour each week	several hours a week	more than an hour a day
Word processing	1	2	3	4	5
Spreadsheets	1	2	3	4	5
Databases	1	2	3	4	5
Desk-top publishing	1	2	3	4	5
Art/graphics software	1	2	3	4	5
CD-ROM software	1	2	3	4	5
E-mail	1	2	3	4	5
World Wide Web	1	2	3	4	5
Games	1	2	3	4	5
Other (please specify):	1	2	3	4	5

3.5 Please also indicate **how long** you use computers for personal purpose outside of your workplace.

	Period of time (e.g. 3 years and 2 months)		Period of time (e.g. 3 years and 2 months)
Word processing		CD-ROM software	
Spreadsheets		E-mail	
Databases		World Wide Web	
Desk-top publishing		Games	
Art/graphics software		Other (please specify):	

3.6 Do you have access to the Internet outside of your workplace? YES ☐ NO ☐

If NO, please move on to section 4.

3.7 Do you have an e-mail address? YES ☐ NO ☐

If NO, please go to section 4. If YES, how often do you check your e-mail?

Never	Once/twice a month	Once a week	Every other day	Every day

4. Use of computers in school

4.1 Please indicate **how often** you have used computers in your teaching the last three months. Please answer each of the following sentences by circling the appropriate response.

		never	about an hour each month	about an hour each week	several hours a week	more than an hour a day
a.	Word processing	1	2	3	4	5
b.	Spreadsheets	1	2	3	4	5
c.	Databases	1	2	3	4	5
d.	Desk-top publishing	1	2	3	4	5
e.	Presentation software	1	2	3	4	5
f.	Art/graphics software	1	2	3	4	5
g.	Modelling	1	2	3	4	5

h.	Measurement and control	1	2	3	4	5
i.	Subject specific software	1	2	3	4	5
j.	Multimedia Encyclopedias (CD-ROM)	1	2	3	4	5
k.	Music composition software	1	2	3	4	5
l.	Logo	1	2	3	4	5
m.	Simulations	1	2	3	4	5
n.	Educational games	1	2	3	4	5
o	Utilities (calculator, calendar, etc.)	1	2	3	4	5
	Other (please specify):	1	2	3	4	5

4.2 Please indicate **how long** you use computers in your teaching/educational work.

	Period of time (e.g. 3 years and 2 months)		**Period of time** (e.g. 3 years and 2 months)
Word processing		Subject specific software	
Spreadsheets		Multimedia Encyclopedias (CD-ROM)	
Databases		Music composition software	
Desk-top publishing		Logo	
Presentation software		Simulations	
Art/graphics software		Educational games	
Modelling		Utilities (calculator, calendar, etc.)	
Measurement and control		Other (please specify):	

5. Using the Internet in your teaching

5.1 Do you use the Internet in your teaching? YES ☐ NO ☐

5.2 If you answered NO to the above question, please state reason(s) of why not, then go to section 6._____

_____

_____

5.3 Please indicate **how often** you have used Internet in your teaching during the last three months. Please answer each of the following sentences by circling the appropriate response.

	Internet uses	**Never**	**about an hour each month**	**about an hour each week**	**Several hours a week**	**more than an hour a day**
p.	Email	1	2	3	4	5
q.	World Wide Web	1	2	3	4	5
r.	User groups	1	2	3	4	5
s.	Video conferencing	1	2	3	4	5

5.4 Please indicate **how long** you use Internet in your teaching/educational work.

Internet uses	**Period of time** (e.g. 3 years and 2 months)
Email	
World Wide Web	
User groups	
Video conferencing	

5.5 Please indicate the kinds of use you make of Internet for teaching purposes. Please tick (√) one box for each sentence.

	YES	NO
For communicating with other teachers and pupils via e-mail.		
For discussing teaching ideas with fellow teachers and other professionals via discussion groups.		
For publishing my own teaching materials in WWW.		
For publishing my pupils' work in WWW.		
For finding out information and resources for lesson preparation.		
Other (please specify):		

6. *Use of computers in subject teaching*

6.1 Please indicate how often you use computers in your teaching in the following subjects during the last three months. Please indicate in final column which type of the software in question 4.1 (p. 4) and 5.3 (p. 5) (e.g. a, b, d).

Subjects	never	about an hour each month	about an hour each week	several hours a week	more than an hour a day	type of software:
Mathematics	1	2	3	4	5	
Science	1	2	3	4	5	
Mother tongue	1	2	3	4	5	
Creative arts	1	2	3	4	5	
Religious studies	1	2	3	4	5	
History	1	2	3	4	5	
Social studies	1	2	3			
Geography	1	2	3			
Other (please specify):	1	2	3	4	5	

6.2 Please indicate your knowledge and expertise in using computers in education. Please indicate by drawing a circle round the appropriate number.

I am capable of ...	not at all	a little	well	very well
1. Using computers in teaching.	1	2	3	4
2. Evaluating the usefulness of software for my lessons.	1	2	3	4
3. Adapting instructional software to my teaching needs.	1	2	3	4
4. Using subject based software with pupils working individual.	1	2	3	4
5. Using educational software as a whole class demonstration.	1	2	3	4
6. Using educational software with pupils in pairs or groups.	1	2	3	4
7. Using word processing for creative writing.	1	2	3	4
8. Using graphics software for pupils to produce pictures and images.	1	2	3	4
9. Using advanced modelling software for teaching modelling skills and concepts.	1	2	3	4
10. Writing courseware for my own lessons.	1	2	3	4

7. *Staff development training*

7.1 Please indicate the time period (in hours) of each form of training in ICT education you have received:

Location	Hours of courses received				
	Initial awareness course	**Short special course (e.g. using databases)**	**Advanced course**	**Working conference**	**Longer award bearing course**
In school					
In university					
LEA Centre					
On-line					
Private institute					
Other (please specify):					

8. *Computer support*

Please indicate the level of support that you receive for your development in the use of computers in your teaching and by whom. Please choose a number for each person (1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot).

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot			
	Support by		
Type of support	**Head Teacher**	**District Officer**	**School Counsel-lor**
Hardware			
Support for the acquisition of hardware for teaching purposes.			
Support for the acquisition of hardware for personal use.			
Maintaining the school network.			
Software			
Support for the acquisition of new software for teaching purposes.			
Information about new subject software.			
Upgrading applications package.			
Providing new software tools.			
Organisation/Administration			
Organization and management (including timetabling) of computer resources.			
Technical assistance.			
Provision of training opportunities.			
The use of computer facilities outside school hours.			
The use of computer facilities outside school hours for staff development.			
On-line access, provision and support.			
Support for the connection to the Internet.			
Curriculum applications			
How to use computers in my teaching.			
How to use computers in specific subjects.			
How to organize pupils in the classroom.			
How to incorporate use of the Internet into my teaching.			
Other			

8.1 Which of the following persons (head teacher, district officer, school counsellor) provided you with most support during the introduction and implementation of computers in your teaching? _____

8.3 Please indicate the type of support: _____
_____
_____

8.4 Please indicate any other support you receive for using ICT, by ticking one or more of the following:

Other member of staff	
Pupil's parents	
Universities	
Other (please specify)	

Part 2

Please explain in a few words what ICT means to you. _____
_____

In the questionnaire you are about to fill out, we ask you questions which make use of rating scales with seven options. You are to check mark (√) the option that best describes your opinion. More specifically, in this questionnaire we are mainly concerned with teachers' views toward using Information Communication Technology (ICT) in their teaching.

Intention

1. I intend to use ICT in my teaching during the next three months

extremely unlikely	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	extremely likely

2. I will try to use ICT in my teaching during the next three months

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

3. I plan to use ICT in my teaching during the next three months

strongly disagree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly agree

Attitudes toward behaviour

4. For me using ICT in my teaching during the next three months is

harmful	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	beneficial
pleasant	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unpleasant
good	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	bad
worthless	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	valuable
enjoyable	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unenjoyable

Subjective norm

5. Most people who are important to me think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

6. It is expected of me that I use ICT in my teaching during the next three months

extremely likely	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	extremely unlikely

7. The people in my life, whose opinions I value would

approve	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	disapprove

of my using ICT in my teaching during the next three months.

8. Most people who are important to me use ICT in their teaching

completely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	completely false

9. The people in my life whose opinions I value

use	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	do not use

ICT in their teaching

Perceived Behavioural Control

10. For me to use ICT in my teaching during the next three months would be

impossible	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	possible

11. If I wanted to I could use ICT in my teaching during the next three months

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

12. How much control do you believe you have over using ICT in your teaching during the next three months?

no control	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	complete control

13. It is mostly up to me whether or not I use ICT in my teaching during the next three months

strongly agree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly disagree

Behavioural belief strength

Using Information Communication Technology in my teaching during the next three months will...		
1	*...enrich my pupils' knowledge.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
2	*...enable me to help the weak pupils improve.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
3	*...help my pupils learn more easily.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Using Information Communication Technology in my teaching during the next three months will...		
4	*...make the lesson more fun for the pupils*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
5	*...increase pupils' interest in learning.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
6	*...stimulate creativity in pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
7	*...significantly improve the overall quality of my pupils' education.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
8	*...be a waste of time for pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
9	*...help pupils work with one another.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
10	*...help my pupils to find a job easier in future.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
11	*...help me improve my ICT expertise.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
12	*...allow me greater access to a computer for personal and professional use.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
13	*...make my lessons more interesting for me.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
14	*...make the lessons more enjoyable for me.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
15	*... make my lessons more diverse.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
16	*...make preparation of lessons easier.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
17	*...help me organise my lessons better.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
18	*...make preparation for lessons more time consuming.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
19	*...restrict the content of my lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
20	*...make it more difficult to control the class.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
21	*...give me more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
22	*...improve my productivity.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
23	*...cause conflicts with my colleagues.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
24	*...restrict my role as a teacher.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
25	*...help me communicate with colleagues in other schools.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
26	*...save me more time and work.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
27	*...cause me stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
28	*...improve the communication among the pupils and me.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
29	*...create problems in the current curriculum.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
30	*...create problems in the school timetable.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
31	*...support the communication of my school with other schools in Greece and abroad.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Using Information Communication Technology in my teaching during the next three months will...		
32	*...help school's better organisation.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
33	*...help the school's personnel to cooperate.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
34	*...help my school to implement other innovations.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Outcome evaluation

1	*Enriching my pupils' knowledge is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
2	*Helping the weak pupils improve is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
3	*Helping pupils learn more easily is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
4	*Making the lesson more fun for the pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
5	*Increasing pupils' interest in learning is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
6	*Stimulating creativity in pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
7	*Improving the overall quality of pupils' education is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
8	*Wasting of time for pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
9	*Helping pupils work with one another is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
10	*Helping pupils to find a job easier in future is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
11	*Improving my ICT expertise is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
12	*Allowing greater access to a computer for personal and professional use is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
13	*Making my lessons more interesting for me is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
14	*Making the lessons more enjoyable for me is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
15	*Making my lessons more diverse is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
16	*Making preparation for lessons easier is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
17	*Organising my lessons better is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
18	*To make preparing for lessons more time consuming is:*	extremely bad :___: ___ :___ :___ :___ :___ : extremely good 1 2 3 4 5 6 7
19	*Restricting the content of my lessons is:*	extremely bad :___: ___ :___ :___ :___ :___ : extremely good 1 2 3 4 5 6 7
20	*Making the control of the class more difficult is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
21	*Having more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
22	*Improving my productivity is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

23	*Having conflicts with my colleagues is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
24	*Restricting my role as a teacher is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
25	*Communicating with colleagues in other schools is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
26	*Saving more time and work is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
27	*Having stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
28	*Improving the communication among pupils and me is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
29	*Creating problems in the current curriculum is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
30	*Creating problems in the school timetable is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
31	*Supporting the communication of my school with other schools in Greece and abroad is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
32	*Helping school's better organization is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
33	*Helping the school's personnel to cooperate is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
34	*Helping school to implement other innovations is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

Normative belief strength

1. My head teacher thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

2. My school counsellor thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

3. My district officer thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

4. Parents' association thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

5. My pupils think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

6. My colleagues think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

7. The Ministry of Education thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

8. Private computer companies think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

9. The Pedagogical Institute thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

10. Universities think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

11. Local authorities (Municipality, Prefecture) think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

12. Greek primary teachers' federation think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

use ICT in my teaching during the next three months.

Motivation to comply

Generally speaking, how much do you want to do what...		
1	*...your head teacher thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
2	*...your school counsellor thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
3	*...your district officer thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
4	*...parents' association think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
5	*...your pupils think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
6	*...your colleagues think you should do?*	not at all :___: ___ :___ :___ :___ :___ : very much 1 2 3 4 5 6 7
7	*...the Ministry of Education thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
8	*...private computer companies thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

9	*...the Pedagogical Institute thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
10	*...universities thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
11	*...local authorities (Municipality, Prefecture) thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
12	*...Greek primary teachers' federation thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

Control belief strength

1. I expect that sufficient number of computers and peripherals (e.g. printer) will be available at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

2. I expect that enough software for teaching purposes will be available at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

3. I expect that technical assistance for operating and maintaining computers will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

4. I expect that adequate financial support for teachers will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

5. I expect that an appropriate computer room will be provided in my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

6. I expect that there will be a small number of pupils in my class during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

7. I expect that enough computer time for my class will be scheduled at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

8. I expect that computers' use will be integrated in the existing prescribed class curriculum at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

9. I expect that I will have enough time to develop lessons in which computers are used at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

10 I expect that support will be provided by the head teacher of my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

11. I expect that support will be provided at my school by the district officer during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

12. I expect that support will be provided at my school by the school counsellor during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

13. I expect that support will be provided at my school by the colleagues during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

14. I expect that support will be provided at my school by the parents' association during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

15. I expect that support will be provided by the Ministry of Education at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

16. I expect that support will be provided by the Pedagogical Institute at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

17. I expect that support will be provided by the local authorities (Municipality, Prefecture) at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

18. I expect that pupils will want to use ICT of my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

19. I expect that enough connections to the Internet will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

20. I expect that sufficient training opportunities on the pedagogical use of ICT for teachers will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

Control belief power

1. The availability of sufficient number of computer and peripherals (e.g. printer) at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

2. The availability of enough software for teaching purposes at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

3. Being provided with technical assistance for operating and maintaining computers at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

4. Adequate financial support for the teachers at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

5. An appropriate computer room in my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

6. The small number of pupils in my class during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

7. The scheduling of enough computer time for my class at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

8. The integration of computer use in the existing prescribed class curriculum at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

9. Enough time to develop lessons in which computers are used at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

10. The support of the head teacher of my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

11. The support of the district officer at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to use ICT in my teaching.

12. The support of the school counsellor at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

13. The support of the colleagues at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

14. The support of the parents' association at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

15. The support of the Ministry of Education at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

16. The support of the Pedagogical Institute at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

17. The support of the local authorities (Municipality, Prefecture) during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

18. For pupils to want to use ICT at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

19. The provision of enough connections to the Internet at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

20. Being provided with sufficient training opportunities on the pedagogical use of ICT for teachers at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to use ICT in my teaching.

Part 3

Attitudes towards Computers

Please circle the appropriate number to indicate your agreement or disagreement with each statement.

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
1	I am tired of using a computer.	1	2	3	4	5
2	Computers are not exciting.	1	2	3	4	5
3	If given the opportunity, I would like to learn about and use computers.	1	2	3	4	5
4	I think that computers are very easy to use.	1	2	3	4	5
5	Computers could enhance remedial instruction.	1	2	3	4	5
6	I will do as little work with computers as possible.	1	2	3	4	5
7	In-service training courses about computers should be made compulsory.	1	2	3	4	5
8	Using computers in class leads to more productivity among students.	1	2	3	4	5
9	I concentrate on a computer when I use one.	1	2	3	4	5
10	I think working with computers would be enjoyable and stimulating.	1	2	3	4	5
11	I would like to take part in a computer course to learn more about computers.	1	2	3	4	5
12	I would work harder if I could use computers more often.	1	2	3	4	5
13	I sometimes feel intimidated when I have to use a computer.	1	2	3	4	5
14	The challenge of solving problems with computers does not appeal to me.	1	2	3	4	5
15	Computers harm relations between people.	1	2	3	4	5
16	I feel comfortable working with a computer.	1	2	3	4	5
17	I am sure I could do work with computers.	1	2	3	4	5
18	Working with computers in class distorts the social climate.	1	2	3	4	5
19	When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.	1	2	3	4	5
20	I enjoy doing things on a computer.	1	2	3	4	5
21	Computers make me feel uneasy and confused.	1	2	3	4	5
22	I am sure I could learn a computer language.	1	2	3	4	5
23	Students are more attentive when computers are used in class.	1	2	3	4	5
24	I know that computers give me opportunities to learn new things.	1	2	3	4	5
25	Computers are difficult to use.	1	2	3	4	5
26	The use of e-mail increases motivation for the course.	1	2	3	4	5
27	I will use computers many ways in my life.	1	2	3	4	5
28	I can't think of any way that I will use computers in my career.	1	2	3	4	5
29	Computers have become too dominant over us.	1	2	3	4	5
30	Learning about computers is a waste of time.	1	2	3	4	5
31	Computers in school enhance students' creativity.	1	2	3	4	5
32	I would like to learn more about computers.	1	2	3	4	5
33	I try to keep myself informed about technological changes.	1	2	3	4	5
34	I do not enjoy talking with others about computers.	1	2	3	4	5
35	Computers help to teach more effectively.	1	2	3	4	5
36	Computers do not scare me at all.	1	2	3	4	5
37	Using a computer prevents me from being creative.	1	2	3	4	5

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
38	The achievement of students can be increased when using computers for teaching.	1	2	3	4	5
39	I would like to learn more about computer as teaching aids.	1	2	3	4	5
40	I would like working with computers.	1	2	3	4	5
41	The use of e-mail makes the course more interesting.	1	2	3	4	5
42	I don't mind learning about computers.	1	2	3	4	5
43	Working with computer makes me nervous.	1	2	3	4	5
44	Computers are valuable tools for improving the quality of a child's education.	1	2	3	4	5
45	I will probably never learn to use a computer.	1	2	3	4	5
46	Social contacts are negatively affected by the use of computers.	1	2	3	4	5
47	Computers can be used successfully with courses which demand creative activities.	1	2	3	4	5
48	Learning about computers is interesting.	1	2	3	4	5
49	I hesitate to use a computer for fear of making mistakes I cannot correct.	1	2	3	4	5
50	We will lose control over computers one day.	1	2	3	4	5
51	I have a lot of self - confidence when it comes to working with computers.	1	2	3	4	5
52	Computers would help students work with one another.	1	2	3	4	5
53	I believe that it is very important for me to learn how to use a computer.	1	2	3	4	5
54	The use of e-mail makes the student feel more involved.	1	2	3	4	5
55	The challenge of learning about computers is exciting.	1	2	3	4	5
56	Computers reduce humans to number.	1	2	3	4	5
57	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
58	Computers can be a useful instructional aid in almost all subject areas.	1	2	3	4	5
59	I don't think I would do advanced computers work.	1	2	3	4	5
60	I would like to spend more time using a computer.	1	2	3	4	5
61	I feel at ease when I am around computers.	1	2	3	4	5
62	The use of e-mail helps the student to learn more.	1	2	3	4	5

Thank you very much for your cooperation

George J. Koutromanos, PhD student
School of Social Science and Public Policy
Department of Education and Professional Studies
King's College London University of London

APPENDIX A2: TEACHER QUESTIONNAIRE
(Greek version)

ΕΜΠΙΣΤΕΥΤΙΚΟ

ΚΩΔΙΚΟΣ

Ερωτηματολόγιο Δασκάλου

Βασικός σκοπός αυτού του ερωτηματολογίου είναι η διερεύνηση της υπάρχουσας κατάστασης των υπολογιστών στα ελληνικά δημοτικά σχολεία. Το ερωτηματολόγιο χωρίζεται σε τρία μέρη. Στο πρώτο μέρος σας ζητείτε να παρουσιάσετε ορισμένες βασικές πληροφορίες για τον εαυτό σας και την εμπειρία σας στους υπολογιστές. Στο δεύτερο και τρίτο μέρος επιδιώκεται να συλλεχθούν πιο λεπτομερείς πληροφορίες ζητώντας σας να προσδιορίσετε κατά πόσον συμφωνείτε ή διαφωνείτε με έναν αριθμό δηλώσεων που παρατίθενται.

Μέρος 1ο

1. *Προσωπικές Πληροφορίες*

1.1. Όνομα: _____ 1.2 Φύλο: Άνδρας ☐ Γυναίκα ☐

1.3 Ηλικία: κάτω των 25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ πάνω από 55 ☐

1.4 Όνομα σχολείου: _____

1.5 Διεύθυνση επικοινωνίας: _____

1.6 Φαξ / Τηλέφωνο επικοινωνίας: _____

1.7 Διεύθυνση ηλεκτρονικού ταχυδρομείου (E-mail): _____

1.8 Πτυχίο (-α) και ειδικότητα (-ες):

Παιδαγωγική Ακαδημία ☐ Παιδαγωγικό Τμήμα Δ.Ε. ☐

Πτυχίο Εξομοίωσης ☐ Μαράσλειο Διδασκαλείο Δ.Ε. ☐

Άλλο πτυχίο ☐ Παρακαλώ προσδιορίστε: _____

Μεταπτυχιακό (Master) ☐ Παρακαλώ προσδιορίστε: _____

Διδακτορικό (PhD) ☐ Παρακαλώ προσδιορίστε: _____

Άλλο ☐ Παρακαλώ προσδιορίστε: _____

1.9 Έτη διδακτικής εμπειρίας: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ πάνω από 25 ☐

1.10 Πόσα χρόνια υπηρετείτε στο συγκεκριμένο σχολείο; _____

1.11 Σε ποια τάξη/εις διδάσκετε; _____

1.12 Σε ποια τάξη/εις χρησιμοποιείτε υπολογιστές; _____

1.13 Πόσοι μαθητές υπάρχουν στην/στις τάξη/εις σας: _____

2. *Η εμπειρία και οι γνώσεις σας στους υπολογιστές*

2.1 Παρακαλώ κυκλώστε την απάντηση που σας αντιπροσωπεύει σε κάθε σειρά.

	Καθόλου	Λίγο	Μέτρια	Αρκετά	Πολύ
Πόσο ευρείες γνώσεις έχετε για τους υπολογιστές:	1	2	3	4	5
	Όχι καλοί	Αδύναμοι	Μέτριοι	Αρκετά καλοί	Πολύ καλοί
Πόσο καλοί είστε στη χρήση προγραμμάτων:	1	2	3	4	5

2.2 Παρακαλώ να προσδιορίσετε τις γνώσεις και την πείρα σας στους υπολογιστές. Παρακαλώ προσδιορίστε κυκλώνοντας τον κατάλληλο αριθμό.

Γνωρίζω...	**Καθόλου**	**Ελάχι-στα**	**Αρκετά**	**Πολύ**
1. Τη διαφορά μεταξύ των υπολογιστών κεντρικού πλαισίου και των προσωπικών υπολογιστών.	1	2	3	4
2. Τη διαφορά μεταξύ λειτουργικού συστήματος και ενός πακέτου εφαρμογών.	1	2	3	4
3. Τις τάσεις εξέλιξης του τεχνικού εξοπλισμού (hardware) τα τελευταία 30 χρόνια.	1	2	3	4
4. Τα κριτήρια αξιολόγησης της ποιότητας ενός εκτυπωτή.	1	2	3	4
5. Τι είναι οι προεκτάσεις αρχείων (file extensions).	1	2	3	4
6. Τη σημασία της λέξης "loop" στη γλώσσα προγραμματισμού.	1	2	3	4
7. Τι είναι η βάση δεδομένων.	1	2	3	4
8. Πώς ορίζεται ενα "bit".	1	2	3	4
9. Τη διαφορά μεταξύ "RAM" και "ROM".	1	2	3	4
10. Τη διαφορά μεταξύ ενός επεξεργαστή κειμένου και του προγράμματος επεξεργασίας σελίδων (desktop publishing programme).	1	2	3	4
Μπορώ...	**καθόλου**	**Ελάχι-στα**	**καλά**	**πολύ καλά**
1. Να φορτώνω λογισμικό στη μνήμη του υπολογιστή.	1	2	3	4
2. Να κάνω "format" στις δισκέτες.	1	2	3	4
3. Να κάνω έλεγχο για ιούς.	1	2	3	4
4. Να διαχειρίζομαι αρχεία.	1	2	3	4
5. Να συνδέω τον υπολογιστή με εξωτερικές συσκευές.	1	2	3	4
6. Να χρησιμοποιώ την παροχή ευκολιών βοηθείας.	1	2	3	4
7. Να δημιουργώ υποφακέλους.	1	2	3	4
8. Να στέλνω ηλεκτρονικό μήνυμα (e-mail).	1	2	3	4
9. Να αναζητώ πληροφορίες στο διαδίκτυο (Internet).	1	2	3	4
10. Να κατεβάζω αρχεία από ηλεκτρονικά μηνύματα ή από το διαδίκτυο.	1	2	3	4

3. *Προσωπική χρήση υπολογιστών (εκτός σχολείου)*

3.1 Έχετε πρόσβαση σε υπολογιστή για προσωπική χρήση εκτός σχολείου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 4.

3.2 Σε ποιον ανήκει ο υπολογιστής που χρησιμοποιείτε εκτός σχολείου (π.χ. σε εσάς, στον/στη σύζυγό σας/σύντροφό σας, Ίντερνετ καφετέρια); _____

3.3 Παρακαλώ να προσδιορίσετε το είδος του υπολογιστή που χρησιμοποιείτε εκτός σχολείου:

Desktop PC		**Φορητό (Laptop)**		**Desktop Apple Mac**	

3.4 Παρακαλώ να προσδιορίσετε πόσο συχνά χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός σχολείου.

	Ποτέ	**Περίπου μια ώρα το μήνα**	**Περίπου μια ώρα την εβδομάδα**	**Αρκετές ώρες την εβδομάδα**	**Περισσότερο από μια ώρα την ημέρα**
Επεξεργαστης κειμένου	1	2	3	4	5
Λογιστικά φύλλα	1	2	3	4	5
Βασεις δεδομένων	1	2	3	4	5
Επεξεργασία σελίδων (Desk-top publishing)	1	2	3	4	5

	Ποτέ	Περίπου μια ώρα το μήνα	Περίπου μια ώρα την εβδομάδα	Αρκετές ώρες την εβδομάδα	Περισσότερο από μια ώρα την ημέρα
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής	1	2	3	4	5
CD-ROM	1	2	3	4	5
Ηλεκτρονικό ταχυδρομείο (E-mail)	1	2	3	4	5
Διαδίκτυο (Internet)	1	2	3	4	5
Παιχνίδια	1	2	3	4	5
Άλλο (παρακαλώ προσδιορίστε):	1	2	3	4	5

3.5 Παρακαλώ να προσδιορίσετε το χρονικό διάστημα που χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός σχολείου.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)		**Χρονική περίοδος** (π.χ. 3 χρόνια και 2 μήνες)
Επεξεργαστής κειμένου		CD-ROM	
Λογιστικά φύλλα		Ηλεκτρονικό ταχυδρομείο (E-mail)	
Βάσεις δεδομένων		Διαδίκτυο (Internet)	
Επεξεργασία σελίδων (Desk-top publishing)		Παιχνίδια	
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής		Άλλο (παρακαλώ προσδιορίστε):	

3.6 Έχετε πρόσβαση στο διαδίκτυο (Internet) εκτός σχολείου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 4.

3.7 Διαθέτετε ηλεκτρονική διεύθυνση (E-mail address); ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 4. Εάν ΝΑΙ πόσο συχνά ελέγχετε τα ηλεκτρονικά σας μηνύματα (e-mail);

Ποτέ	Μια φορά / δυο φορές το μήνα	Μια φορά την εβδομάδα	Κάθε δεύτερη μέρα	Κάθε μέρα

4. *Χρήση υπολογιστών στο σχολείο*

4.1 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιήσατε υπολογιστές στη διδασκαλία σας κατά την διάρκεια των τελευταίων τριών μηνών.** Παρακαλώ απαντήστε σε καθεμία από τις ακόλουθες ερωτήσεις κυκλώνοντας την κατάλληλη απάντηση.

		Ποτέ	Περίπου μια ώρα το μήνα	Περίπου μια ώρα την εβδομάδα	Αρκετές ώρες την εβδομάδα	Περισσότερο από μια ώρα την ημέρα
Α	Επεξεργαστής κειμένου	1	2	3	4	5
Β	Λογιστικό φύλλο	1	2	3	4	5
Γ	Βάσεις δεδομένων	1	2	3	4	5
Δ	Επεξεργασία σελίδων (Desk-top publishing)	1	2	3	4	5
Ε	Λογισμικό παρουσίασης	1	2	3	4	5
Η	Μοντελοποίηση	1	2	3	4	5
Ζ	Λογισμικό επεξεργασίας γραφικών και ζωγραφικής	1	2	3	4	5
Θ	Λογισμικό μέτρησης και ελέγχου	1	2	3	4	5

		Ποτέ	Περίπου μια ώρα το μήνα	Περίπου μια ώρα την εβδομάδα	Αρκετές ώρες την εβδομάδα	Περισσότερο από μια ώρα την ημέρα
Ι	Λογισμικό συγκεκριμένου θέματος	1	2	3	4	5
Κ	Εγκυκλοπαίδειες πολυμέσων (CD-ROM)	1	2	3	4	5
Λ	Λογισμικό μουσικής σύνθεσης	1	2	3	4	5
Μ	Logo	1	2	3	4	5
Ν	Προσομοίωσης (Simulations)	1	2	3	4	5
Ξ	Εκπαιδευτικά παιχνίδια	1	2	3	4	5
Ο	Εργασίες ρουτινας (μηχάνημα υπολογισμών - κομπιουτεράκι, ημερολόγιο. κτλ.)	1	2	3	4	5
	Άλλο (παρακαλώ προσδιορίστε):					

4.2 Παρακαλώ να προσδιορίσετε το **χρονικό διάστημα που χρησιμοποιείτε** υπολογιστές στη διδασκαλία σας, στο συγκεκριμένο σχολείο.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)		**Χρονική περίοδος** (π.χ. 3 χρόνια και 2 μήνες)
Επεξεργαστής κειμένου		Λογισμικό συγκεκριμένου θέματος	
Λογιστικό φύλλο		Εγκυκλοπαίδειες πολυμέσων (CD-ROM)	
Βάσεις δεδομένων		Λογισμικό μουσικής σύνθεσης	
Επεξεργασία σελίδων (Desk-top publishing)		Logo	
Λογισμικό παρουσίασης		Προσομοίωσης (Simulations)	
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής		Εκπαιδευτικά παιχνίδια	
Μοντελοποίηση		Εργασίες ρουτίνας (μηχάνημα υπολογισμών - κομπιουτεράκι, ημερολόγιο. κτλ.)	
Μέτρηση και έλεγχος		Άλλο (παρακαλώ προσδιορίστε):	

5. Χρήση του διαδικτύου (Internet) στη διδασκαλία

5.1 Χρησιμοποιείτε το διαδίκτυο (Internet) στη διδασκαλία σας; ΝΑΙ ☐ ΟΧΙ ☐

5.2 Εάν απαντήσατε ΟΧΙ στην παραπάνω ερώτηση, παρακαλώ παραθέστε τους λόγους αυτής της απάντησης και ύστερα προχωρήστε στην ενότητα 6.

_____
_____
_____
_____
_____
_____
_____

5.3 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιήσατε το διαδίκτυο** (Ιντερνετ) **στη διδασκαλία σας κατά την διάρκεια των τελευταίων τριών μηνών.** Παρακαλώ απαντήστε σε καθεμία από τις ακόλουθες ερωτήσεις κυκλώνοντας την κατάλληλη απάντηση.

		Ποτέ	**Περίπου μια ώρα το μήνα**	**Περίπου μια ώρα την εβδομάδα**	**Αρκετές ώρες την εβδομάδα**	**Περισσότερο από μια ώρα την ημέρα**
Π	Ηλεκτρονικό ταχυδρομείο (e-mail)	1	2	3	4	5
Ρ	Διαδίκτυο (Internet)	1	2	3	4	5
Σ	User groups	1	2	3	4	5
Τ	Video conferencing	1	2	3	4	5

5.4 Παρακαλώ να προσδιορίσετε το **χρονικό διάστημα που χρησιμοποιείτε** το διαδίκτυο στη διδασκαλία σας στο συγκεκριμένο σχολείο.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)
Ηλεκτρονικό ταχυδρομείο (e-mail)	
Διαδίκτυο (Internet)	
User groups	
Video conferencing	

5.5 Παρακαλώ προσδιορίστε το είδος της χρήσης του διαδικτύου (Internet) που επιλέγετε για διδακτικούς σκοπούς. Σημειώστε (√) ένα πλαίσιο για κάθε πρόταση.

	ΝΑΙ	ΟΧΙ
Για την επικοινωνία με άλλους δασκάλους και μαθητές μέσω ηλεκτρονικών μηνυμάτων.		
Για την ανάπτυξη ιδεών σχετικά με τη διδασκαλία με συναδέλφους και άλλους επαγγελματίες μέσω ομάδων συζήτησης.		
Για τη δημοσίευση προσωπικού διδακτικού υλικού στο διαδίκτυο.		
Για τη δημοσίευση μαθητικών εργασιών στο διαδίκτυο.		
Για την ανεύρεση πληροφοριών και πηγών χρήσιμων στην προετοιμασία του μαθήματος.		
Άλλο (παρακαλώ προσδιορίστε):		

6. Χρήση των υπολογιστών στην διδασκαλία

6.1 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιήσατε υπολογιστές** στη διδασκαλία σας, στα παρακάτω μαθήματα, κατά την διάρκεια των τελευταίων τριών μηνών. Στην τελευταία στήλη γράψτε το είδος του λογισμικού που χρησιμοποιήσατε στο κάθε μάθημα συμβολίζοντάς τα με τα γράμματα της αλφαβήτας των ερωτήσεων **4.1** (σελ. 4) και **5.3** (σελ. 5) (π.χ. μπορεί να σημειώσετε στο μάθημα της γλώσσας αρκετές ώρες την εβδομάδα και ότι χρησιμοποιήσατε **Α** και **Ρ**, δηλαδή επεξεργαστή κειμένου και διαδίκτυο).

Μαθήματα	**Ποτέ**	**Περίπου μια ώρα το μήνα**	**Περίπου μια ώρα την εβδομάδα**	**Αρκετές ώρες την εβδομάδα**	**Περισσότερο από μια ώρα την ημέρα**	**Είδος λογισμικού που χρησιμοποιήσατε (π.χ. Α και Ρ)**
Μαθηματικά	1	2	3	4	5	
Φυσική	1	2	3	4	5	
Γλώσσα	1	2	3	4	5	
Καλλιτεχνικά	1	2	3	4	5	
Ιστορία	1	2	3	4	5	
Θρησκευτικά	1	2	3	4	5	
Πολιτική και κοινωνική αγωγή	1	2	3			
Γεωγραφια	1	2	3			
Άλλο (παρακαλώ προσδιορίστε):	1	2	3	4	5	

6.2 Παρακαλώ να προσδιορίσετε τις γνώσεις και την πείρα σας στους υπολογιστές στην εκπαίδευση. Παρακαλώ προσδιορίστε κυκλώνοντας τον κατάλληλο αριθμό.

Είμαι σε θέση ...	**καθόλου**	**ελάχι-στα**	**καλά**	**πολύ καλά**
1. Να χρησιμοποιώ υπολογιστές στη διδασκαλία.	1	2	3	4
2. Να αξιολογώ τη χρησιμότητα του λογισμικού για το μάθημά μου.	1	2	3	4
3. Να προσαρμοζω κάθε εκπαιδευτικό λογισμικό ανάλογα με τις διδακτικές μου ανάγκες.	1	2	3	4
4. Να χρησιμοποιώ λογισμικό ανάλογα με το μάθημα για εξατομικευμένη διδασκαλία.	1	2	3	4
5. Να χρησιμοποιώ εκπαιδευτικό λογισμικό για παρουσίαση σε ολόκληρη την τάξη.	1	2	3	4
6. Να χρησιμοποιώ εκπαιδευτικό λογισμικό σε μαθητές ανά ζεύγη ή σε ομάδες.	1	2	3	4
7. Να χρησιμοποιώ επεξεργαστή κειμένου για δημιουργικό γράψιμο.	1	2	3	4
8. Να χρησιμοποιώ λογισμικό επεξεργασίας γραφικών ώστε οι μαθητές μου να δημιουργούν εικόνες και γραφικά.	1	2	3	4
9. Να χρησιμοποιώ προχωρημένου επιπέδου λογισμικό σχεδιασμού μοντέλων για τη διδασκαλία δεξιοτήτων και εννοιών.	1	2	3	4
10. Να δημιουργώ το έντυπο υλικό μέσω υπολογιστή για τα μαθήματά μου.	1	2	3	4

7. Ενδο - εργασιακή επιμόρφωση / κατάρτιση

7.1 Παρακαλώ να προσδιορίσετε τον αριθμό κάθε είδους επαγγελματικής επιμόρφωσης/κατάρτισης που λάβατε στον τομέα των υπολογιστών στην εκπαίδευση (π.χ. 30 ώρες σε τμήμα αρχαρίων από το Πανεπιστήμιο).

Τόπος	**Σύνολο ωρών**				
	Τμήμα αρχαρίων	**Εξειδικευμένο τμήμα μικρής διάρκειας (π.χ. χρήση βάσης δεδομένων)**	**Τμήμα προχωρη-μένων**	**Συνέδριο εργασίας**	**Μακράς χρονικής διάρκειας τμήμα με απονομή πτυχίου**
Στο σχολείο					
Στο πανεπιστημιο					
Στα ΠΕΚ					
Στο διαδικτυο					
Σε ιδιωτικό οργανισμό					
Αλλού (παρακαλώ προσδιορίστε):					

8. Υποστήριξη στους υπολογιστές

8.1 Παρακαλώ να προσδιορίσετε τον βαθμό υποστήριξης που σας παρέχεται για την εξέλιξή σας στη χρήση υπολογιστή στη διδασκαλία σας και από ποιον. Επιλέξτε έναν αριθμό σε κάθε πρόσωπο (**1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ**).

1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ

Είδος υποστήριξης	**Υποστήριξη από:**		
	Διευθυντή	**Προϊστάμενο Γραφείου**	**Σχολικό Σύμβουλο**
Τεχνικός εξοπλισμός			
Υποστήριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για διδακτικούς σκοπούς.			
Υποστήριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για προσωπική χρήση.			
Συντήρηση του σχολικού δικτύου.			
Λογισμικό			
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διδακτικούς σκοπούς.			
Πληροφορίες σχετικά με νέα θέματα λογισμικού.			
Αναβάθμιση πακέτων εφαρμογών.			
Παροχή νέων εργαλείων λογισμικού.			
Οργάνωση/Διοίκηση			
Οργανωση και διαχείριση (συμπεριλαμβανομένου προγραμματισμού) των πηγών του υπολογιστή.			
Τεχνική βοήθεια.			
Παροχή επιμορφωτικών δυνατοτήτων.			
Χρήση των υπολογιστών εκτός σχολικού προγράμματος.			
Χρήση των υπολογιστών για τη βελτίωση της εκπαίδευσης του προσωπικού εκτός σχολικού προγράμματος.			
Πρόσβαση στο διαδίκτυο. παροχή και υποστήριξη.			
Υποστήριξη για τη σύνδεση με το διαδίκτυο.			
Εφαρμογές αναλυτικού προγράμματος			
Πώς να χρησιμοποιώ τους υπολογιστές στην διδασκαλία μου.			
Πώς να χρησιμοποιώ υπολογιστές σε συγκεκριμένα μαθήματα.			
Πώς να οργανώνω τους μαθητές στην τάξη.			
Πώς να ενσωματώνω την χρήση του διαδικτύου (Internet) στην διδασκαλία μου.			
Άλλο (παρακαλώ προσδιορίστε):			

8.2 Ποιο από τα ακόλουθα πρόσωπα (διευθυντής, προϊστάμενος γραφείου/διεύθυνσης, σχολικός σύμβουλος) σας παρείχε τη μεγαλύτερη υποστήριξη κατά την εισαγωγή και εφαρμογή των υπολογιστών στη διδασκαλία σας:

_____

8.3 Παρακαλώ προσδιορίστε το είδος της υποστήριξης:_____

_____

8.4 Παρακαλώ να προσδιορίσετε οποιαδήποτε άλλη βοήθεια λάβατε για τη χρήση των υπολογιστών στην εκπαίδευση, επιλέγοντας ένα ή περισσότερα από τα ακόλουθα πρόσωπα:

Από άλλο μέλος του προσωπικού του σχολείου	
Από γονείς των μαθητών	
Από τον Διευθυντή	
Από τον Σχολικό Σύμβουλο	
Από τον Προϊστάμενο Γραφείου	
Από τα πανεπιστήμια	
Άλλο πρόσωπο (παρακαλώ προσδιορίστε):	

Μέρος 2ο

Παρακαλώ γράψτε εν συντομία τι σημαίνει για σας ο όρος Τεχνολογίες της Πληροφορίας και της Επικοινωνίας (ΤΠΕ): _____

_____

_____

_____

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν κατά πόσο σκοπεύετε να χρησιμοποιήσετε τις ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προτίθεμαι να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

εντελώς απίθανο	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πολύ πιθανό

2. Θα προσπαθήσω να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

3. Σχεδιάζω να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ εντελώς	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

4. Η χρήση των ΤΠΕ στη διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών είναι για μένα:

επιβλαβης	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	ευεργετική
ευχάριστη	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δυσάρεστη
καλή	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	κακή
μάταια	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	αξιόλογη
διασκεδαστική	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	βαρετή

5. Η πλειοψηφία των πιο σημαντικών για μένα ατόμων πιστεύουν ότι:

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

6. Πρόκειται να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

πολύ πιθανό	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	εντελώς απίθανο

7. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου θα

επιδοκιμάσουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	αποδοκιμάσουν

να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

8 Η πλειοψηφία των πιο σημαντικών για μένα ατόμων χρησιμοποιούν τις ΤΠΕ.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

9. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου

χρησιμοποιούν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν χρησιμοποιούν

τις ΤΠΕ.

10. Η χρήση των ΤΠΕ στην διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών θα ήταν για μένα

απίθανη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πιθανή

11. Εάν ήθελα θα μπορούσα εύκολα να χρησιμοποιήσω τις ΤΠΕ στη διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

12. Πόσο πιστεύετε ότι μπορείτε να ελέγξετε τη χρήση των Νέων Τεχνολογιών στην διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών.

καθόλου	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	απόλυτα

13. Εξαρτάται κυρίως από μένα εάν θα χρησιμοποιήσω ή όχι τις ΤΠΕ στην διδασκαλία μου κατά τη διάρκεια των επόμενων τριών μηνών.

συμφωνώ απόλυτα	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	διαφωνώ κάθετα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πλεονεκτήματα και τα μειονεκτήματα της χρήσης των ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

	Η χρήση των ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών ...	
1	...θα εμπλουτίσει τις γνώσεις των μαθητών μου	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
2	...θα βοηθήσει τους αδύνατους μαθητές μου να βελτιωθούν.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελως απιθανο 7 6 5 4 3 2 1
3	...θα βοηθήσει τους μαθητές μου να μαθαίνουν πιο εύκολα.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
4	...θα κάνει πιο ευχάριστο το μάθημα για τους μαθητές μου.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
5	...θα αυξήσει το ενδιαφέρον των μαθητών μου για μάθηση.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελως απιθανο 7 6 5 4 3 2 1
6	...θα ενθαρρύνει τη δημιουργικότητα στους μαθητές μου.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
7	...θα βελτιώσει σημαντικά τη συνολική ποιότητα της εκπαίδευσης των μαθητών μου.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
8	...θα είναι χάσιμο χρόνου για τους μαθητές μου.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
9	...θα βοηθήσει τους μαθητές μου στη μεταξύ τους συνεργασία.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελως απίθανο 7 6 5 4 3 2 1
10	...θα βοηθήσει τους μαθητές μου να βρουν ευκολότερα δουλειά στο μέλλον.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απιθανο 7 6 5 4 3 2 1
11	...θα με βοηθήσει να βελτιώσω τις γνώσεις μου στους υπολογιστές.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
12	...θα μου επιτρέψει να έχω μεγαλύτερη πρόσβαση στον υπολογιστή για προσωπική και επαγγελματική χρήση.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
13	...θα κάνει τα μαθήματα πιο ενδιαφέροντα για μένα.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελως απίθανο 7 6 5 4 3 2 1
14	...θα κάνει τα μαθήματα πιο ευχάριστα για μένα.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απιθανο 7 6 5 4 3 2 1

Η χρήση των ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών ...		
15	...θα κάνει τα μαθηματα περισσότερο ποικίλα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
16	...θα κάνει την προετοιμασία των μαθημάτων μου πιο εύκολη.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
17	...θα με βοηθήσει να οργανώσω καλύτερα τα μαθήματά μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
18	...θα κάνει την προετοιμασία των μαθημάτων μου περισσότερο χρονοβόρα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
19	...θα περιορίσει το περιεχόμενο διδασκαλιας των μαθημάτων μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
20	...θα κάνει πιο δύσκολο τον έλεγχο της τάξης μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
21	...θα μου προσδώσει μεγαλύτερο κύρος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
22	...θα βελτιώσει την παραγωγικότητά μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
23	...θα δημιουργήσει διαμάχες με τους συναδέλφους μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
24	...θα περιορίσει τον ρόλο μου ως δάσκαλο.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
25	...θα με βοηθήσει να επικοινωνήσω με συναδέλφους άλλων σχολείων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
26	...θα μου "γλιτώσει" αρκετή ώρα και δουλειά.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
27	...θα μου δημιουργήσει άγχος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
28	...θα βελτιώσει την επικοινωνία ανάμεσα σε μένα και τους μαθητές μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
29	...θα δημιουργήσει προβλήματα στο υπάρχον αναλυτικό πρόγραμμα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
30	...θα δημιουργήσει προβλήματα στο ωρολόγιο πρόγραμμα του σχολείου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
31	...θα υποστηρίξει την επικοινωνία του σχολείου μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
32	...θα βοηθήσει στην καλυτερη οργάνωση του σχολείου μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
33	...θα βοηθήσει να συνεργαστεί όλο το προσωπικό του σχολείου μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
34	...θα βοηθήσει το σχολείο μου να εφαρμόσει άλλες καινοτομίες.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες αξιολογούν τα ανωτέρω πλεονεκτήματα και μειονεκτήματα της χρήσης των ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1	Ο εμπλουτισμός των γνώσεων των μαθητών μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
2	Το να βοηθήσω τους αδύνατους μαθητές μου να βελτιωθούν είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
3	Το να βοηθήσω τους μαθητές μου να μαθαίνουν πιο εύκολα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
4	Το να κάνω το μάθημα πιο ευχάριστο για τους μαθητές μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
5	Το να αυξηθεί το ενδιαφέρον των μαθητών μου για μάθηση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

6	Το να ενθαρρύνω τη δημιουργικότητα των μαθητών μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
7	Το να βελτιώσω τη συνολική ποιότητα της εκπαίδευσης των μαθητών μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
8	Το χάσιμο του χρόνου για τους μαθητές μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
9	Το να βοηθήσω τους μαθητές μου στη μεταξύ τους συνεργασία είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
10	Το να βοηθήσω τους μαθητές μου να βρουν πιο εύκολα δουλειά στο μέλλον είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
11	Η βελτίωση των γνώσεων μου στους υπολογιστές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
12	Το να έχω μεγαλύτερη πρόσβαση στους υπολογιστές για προσωπική και επαγγελματική χρήση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
13	Το να κάνω τα μαθήματά μου πιο ενδιαφέροντα για μένα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
14	Το να κάνω τα μαθήματά μου πιο διασκεδαστικά για μένα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
15	Το να είναι τα μαθήματά μου περισσότερο ποικίλα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
16	Το να κάνω την προετοιμασία των μαθημάτων μου πιο εύκολη είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
17	Το να οργανώσω καλύτερα τα μαθήματά μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
18	Το να κάνω την προετοιμασία των μαθημάτων μου περισσότερο χρονοβόρα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
19	Το να περιοριστεί το περιεχόμενο διδασκαλίας των μαθημάτων μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
20	Το να είναι ο έλεγχος της τάξης μου πιο δύσκολος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
21	Το να έχω περισσότερο κύρος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
22	Το να βελτιώσω την παραγωγικότητα μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
23	Το να έχω διαμάχες με τους συναδέλφους μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
24	Ο περιορισμός του ρόλου μου ως δασκάλου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
25	Η επικοινωνια μου με συναδέλφους άλλων σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
26	Το να "γλιτώσω" αρκετή ώρα και δουλειά είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
27	Το να έχω άγχος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
28	Το να βελτιωθεί η επικοινωνία ανάμεσα σε μένα και στους μαθητές μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
29	Η δημιουργία προβλημάτων στο υπάρχον αναλυτικό πρόγραμμα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
30	Η δημιουργία προβληματων στο ωρολόγιο πρόγραμμα του σχολείου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ : εξαιρετικά κακό 7 6 5 4 3 2 1
31	Το να υποστηριχθεί η επικοινωνία του σχολείου μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
32	Το να βοηθηθεί η καλύτερη οργάνωση του σχολείου μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
33	Το να βοηθηθεί η συνεργασία του προσωπικού του σχολείου μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
34	Το να βοηθηθεί το σχολείο μου να εφαρμόσει άλλες καινοτομίες είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πιθανά πρόσωπα που μπορεί να επιδοκιμάσουν ή να αποδοκιμάσουν την πρόθεσή σας για χρήση των ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Ο διευθυντής μου πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

2. Ο σχολικός μου σύμβουλος πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

3. Ο προϊστάμενός του γραφείου μου πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

4. Ο σύλλογος γονέων και κηδεμόνων πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρεπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

5. Οι μαθητές μου πιστεύουν ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

6. Οι συνάδελφοί μου πιστεύουν ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

7. Το Υπουργείο Παιδείας πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

8. Οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

9. Το Παιδαγωγικό Ινστιτούτο πιστεύει ότι

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

10 Τα πανεπιστήμια πιστεύουν ότι

πρεπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρεπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

11. Η τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

12. Η Διδασκαλική Ομοσπονδία Ελλάδας πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να χρησιμοποιήσω τις ΤΠΕ στην διδασκαλία μου κατά την διάρκεια των επόμενων τριών μηνών.

	Μιλώντας γενικά, πόσο θέλετε να κάνετε αυτό που...	
1	...ο διευθυντής σας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
2	...ο σχολικός σας σύμβουλος πιστεύει ότι πρέπει να κάνετε:	καθολου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
3	...ο προϊστάμενος του γραφείου σας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
4	...ο σύλλογος γονέων και κηδεμόνων πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
5	...οι μαθητές σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
6	...οι συνάδελφοί σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
7	...το Υπουργείο Παιδείας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
8	...οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
9	...το Παιδαγωγικό Ινστιτούτο πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ παρα πολύ 1 2 3 4 5 6 7
10	...τα πανεπιστήμια πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
11	...η τοπική αυτοδιοίκηση πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
12	...η Διδασκαλική Ομοσπονδία Ελλάδας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν στη χρήση των ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει την απόλυτη διαφωνία ενώ ο αριθμός 7 δηλώνει την απόλυτη συμφωνία. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προσδοκώ ότι επαρκής αριθμός υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) θα υπάρχει στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

2. Προσδοκώ ότι θα υπάρχει στο σχολείο μου αρκετό εκπαιδευτικό λογισμικό για εκπαιδευτικούς σκοπούς κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

3. Προσδοκώ ότι τεχνική βοήθεια για την λειτουργία και διατήρηση των υπολογιστών θα υπάρχει στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

4. Προσδοκώ ότι θα υπάρχει στο σχολείο μου επαρκής οικονομική στήριξη για τους δασκάλους κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

5. Προσδοκώ ότι θα υπάρχει κατάλληλο εργαστήριο υπολογιστών στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

6. Προσδοκώ ότι θα υπάρχει μικρός αριθμός μαθητών στην τάξη μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

7. Προσδοκώ ότι θα προγραμματιστεί στο σχολείο μου αρκετός χρόνος για την χρήση υπολογιστών από την τάξη μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

8. Προσδοκώ ότι η χρήση των υπολογιστών θα ενσωματωθεί στο ισχύον Αναλυτικό Πρόγραμμα στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

9. Προσδοκώ ότι θα έχω αρκετό χρόνο για να αναπτύξω τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

10. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τον διευθυντή κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

11. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τον προϊστάμενο γραφείου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

12. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το σχολικό σύμβουλο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

13. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τους συναδέλφους μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

14. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τον σύλλογο γονέων και κηδεμόνων κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

15. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το Υπουργείο Παιδείας κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

16. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το Παιδαγωγικό Ινστιτούτο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

17. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από την τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

18. Προσδοκώ ότι οι μαθητές μου θα θέλουν να χρησιμοποιήσουν υπολογιστές στο σχολείο μου κατά την διάρκεια της τρέχουσας σχολικής χρονιάς.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

19. Προσδοκώ ότι θα υπάρχει συνεχής σύνδεση στο διαδίκτυο στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

20. Προσδοκώ ότι θα υπάρχουν στο σχολείο μου επαρκείς δυνατότητες επιμόρφωσης των εκπαιδευτικών στην παιδαγωγική χρήση των υπολογιστών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν στη χρήση των ΤΠΕ στη διδασκαλία σας κατά τη διάρκεια των επόμενων τριών μηνών. Παρακαλώ σε κάθε πρόταση να επιλέξετε έναν αριθμό που να αντιπροσωπεύει την απάντησή σας.

1. Η ύπαρξη επαρκούς αριθμού υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσοτερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

2. Η ύπαρξη αρκετού εκπαιδευτικού λογισμικού για εκπαιδευτικούς σκοπούς στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

3. Το να υπάρχει τεχνική βοήθεια για την λειτουργία και συντήρηση των υπολογιστών στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

4. Επαρκής οικονομική στήριξη για τους δασκάλους στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

5. Ένα κατάλληλο εργαστήριο πληροφορικής στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσοτερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

6. Ο μικρός αριθμός μαθητών στην τάξη μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

7. Το να προγραμματιστεί αρκετός χρόνος για χρήση υπολογιστών από την τάξη μου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

8. Η ενσωμάτωση της χρήσης των υπολογιστών στο ισχύον Αναλυτικό Πρόγραμμα στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

9. Η ύπαρξη αρκετού χρόνου για να αναπτύξω τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

10. Η υποστήριξη του διευθυντή στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

11. Η υποστήριξη του προϊστάμενου του γραφείου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

12. Η υποστήριξη του σχολικού συμβούλου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

13. Η υποστήριξη των συναδέλφων μου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

14. Η υποστήριξη του συλλόγου γονέων και κηδεμόνων στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

15. Η υποστήριξη του Υπουργείου Παιδείας στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

16. Η υποστήριξη του Παιδαγωγικού Ινστιτούτου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

17. Η υποστήριξη της τοπικής αυτοδιοίκησης (Δήμος, Νομαρχία) στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

18. Το να θέλουν οι μαθητές μου να χρησιμοποιήσουν υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

19. Η ύπαρξη συνεχούς σύνδεσης στο διαδίκτυο στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

20. Το να υπάρχουν επαρκείς δυνατότητες επιμόρφωσης στην παιδαγωγική χρήση των υπολογιστών για τους δασκάλους στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την χρήση των ΤΠΕ στην διδασκαλία μου.

Μέρος 3ο

Στη συνέχεια του ερωτηματολογίου υπάρχουν κάποιες στάσεις απέναντι στους υπολογιστές. Παρακαλώ, κυκλώστε ένα αριθμό σε κάθε πρόταση, δηλώνοντας την απάντηση που σας αντιπροσωπεύει.

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
1	Έχω κουραστεί να χρησιμοποιώ υπολογιστή.	1	2	3	4	5
2	Οι υπολογιστές δεν είναι συναρπαστικοί.	1	2	3	4	5
3	Αν μου δινόταν η ευκαιρία, θα ήθελα να μάθω για τους υπολογιστές και τη χρήση τους.	1	2	3	4	5
4	Νομίζω ότι οι υπολογιστές είναι πολύ εύκολοι στη χρήση τους.	1	2	3	4	5
5	Οι υπολογιστές θα μπορούσαν να βοηθήσουν στην ενισχυτική διδασκαλία.	1	2	3	4	5
6	Θα εργαστώ με υπολογιστή όσο το δυνατόν λιγότερο.	1	2	3	4	5
7	Τα επιμορφωτικά προγράμματα για τους υπολογιστές στο χώρο εργασίας πρέπει να γίνουν υποχρεωτικά.	1	2	3	4	5

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
8	Η χρήση υπολογιστή στην τάξη οδηγεί σε αυξημένη απόδοση των μαθητών.	1	2	3	4	5
9	Συγκεντρώνομαι στον υπολογιστή, όταν τον χρησιμοποιώ.	1	2	3	4	5
10	Νομίζω ότι η εργασία με υπολογιστές θα ήταν ευχάριστη και ενδιαφέρουσα.	1	2	3	4	5
11	Θα ήθελα να συμμετάσχω σε μάθημα πληροφορικής για να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
12	Θα δούλευα πιο εντατικά αν είχα τη δυνατότητα να χρησιμοποιώ υπολογιστές συχνότερα.	1	2	3	4	5
13	Μερικές φορές φοβάμαι όταν πρέπει να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
14	Η πρόκληση να λύνω προβλήματα με υπολογιστή δεν με ελκύει.	1	2	3	4	5
15	Οι υπολογιστές βλάπτουν τις σχέσεις μεταξύ των ανθρώπων.	1	2	3	4	5
16	Νιώθω άνετα όταν εργάζομαι με υπολογιστή.	1	2	3	4	5
17	Είμαι βέβαιος/-η ότι θα μπορούσα να εργαστώ με υπολογιστές.	1	2	3	4	5
18	Η εργασία με υπολογιστές στην τάξη διαστρεβλώνει το κοινωνικό κλίμα.	1	2	3	4	5
19	Αν προέκυπτε πρόβλημα με κάποιο πρόγραμμα του υπολογιστή που δεν μπορώ να λύσω άμεσα, θα επέμεινα σε αυτό μέχρι να βρω την λύση.	1	2	3	4	5
20	Μου αρέσει να ασχολουμαι με έναν υπολογιστή.	1	2	3	4	5
21	Οι υπολογιστές με κάνουν να νιώθω αμήχανος/-η και μπερδεμένος/-η.	1	2	3	4	5
22	Είμαι βέβαιος ότι θα μπορούσα να μάθω μια γλώσσα προγραμματισμού (για τον υπολογιστή).	1	2	3	4	5
23	Οι μαθητές προσέχουν περισσότερο όταν στην τάξη χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
24	Ξέρω ότι οι υπολογιστές μου δίνουν την ευκαιρία να μάθω νέα πράγματα.	1	2	3	4	5
25	Η χρήση των υπολογιστών είναι δύσκολη.	1	2	3	4	5
26	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) αυξάνει τα κίνητρα στους μαθητές για το μάθημα.	1	2	3	4	5
27	Θα χρησιμοποιήσω τους υπολογιστές με πολλούς τρόπους στη ζωή μου.	1	2	3	4	5
28	Δεν μπορώ να σκεφτώ κανένα τρόπο που θα χρησιμοποιήσω υπολογιστή στην καριέρα μου.	1	2	3	4	5
29	Πρέπει να είσαι "μυαλό" για να εργάζεσαι με υπολογιστές.	1	2	3	4	5
30	Η εκμάθηση των υπολογιστών είναι χάσιμο χρόνου.	1	2	3	4	5
31	Οι υπολογιστές στο σχολείο εξαίρουν τη δημιουργικότητα των μαθητών.	1	2	3	4	5
32	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
33	Προσπαθώ να ενημερώνομαι για τις τεχνολογικες εξελίξεις.	1	2	3	4	5
34	Δεν μου αρέσει να συζητώ με άλλους για υπολογιστές.	1	2	3	4	5
35	Οι υπολογιστές συντελούν στην πιο αποδοτική διδασκαλία.	1	2	3	4	5
36	Οι υπολογιστές δεν με φοβίζουν καθόλου.	1	2	3	4	5
37	Η χρήση ενός υπολογιστή με εμποδίζει να είμαι δημιουργικός/-ή.	1	2	3	4	5
38	Οι επιδόσεις των μαθητών μπορούν να αυξηθούν όταν στη διδασκαλία χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
39	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές ως ενισχυτικά μέσα διδασκαλίας.	1	2	3	4	5
40	Θα μου άρεσε να εργάζομαι με υπολογιστές.	1	2	3	4	5
41	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μάθημα πιο ενδιαφέρον.	1	2	3	4	5
42	Δεν με πειράζει να μάθω για τους υπολογιστές.	1	2	3	4	5
43	Η εργασία με υπολογιστή με κάνει νευρικό/-ή.	1	2	3	4	5
44	Οι υπολογιστές είναι πολύτιμα εργαλεία για τη βελτίωση της ποιότητας της εκπαίδευσης των μαθητών.	1	2	3	4	5
45	Πιθανώς δεν θα μάθω ποτέ να χρησιμοποιώ υπολογιστές.	1	2	3	4	5

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
46	Οι κοινωνικές επαφές επηρεάζονται αρνητικά από τη χρήση των υπολογιστών.	1	2	3	4	5
47	Οι υπολογιστές μπορούν να χρησιμοποιηθούν με επιτυχία σε μαθήματα που απαιτούν δημιουργικές δραστηριότητες.	1	2	3	4	5
48	Είναι ενδιαφέρον να μαθαίνει κανείς για υπολογιστές.	1	2	3	4	5
49	Διστάζω να χρησιμοποιήσω υπολογιστές από φόβο ότι θα κάνω λάθη που δεν μπορώ να διορθώσω.	1	2	3	4	5
50	Τα άτομα που εργάζονται με υπολογιστές κάθονται μπροστά σε μια οθόνη όλη την ημέρα.	1	2	3	4	5
51	Έχω πολλή αυτοπεποίθηση όσον αφορά την εργασία με υπολογιστές.	1	2	3	4	5
52	Οι υπολογιστές θα βοηθούσαν τους μαθητές να συνεργάζονται μεταξύ τους.	1	2	3	4	5
53	Πιστεύω ότι είναι πολύ σημαντικό για μένα να μάθω να χειρίζομαι έναν υπολογιστή.	1	2	3	4	5
54	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μαθητή να νιώθει ότι συμμετέχει περισσότερο.	1	2	3	4	5
55	Η πρόκληση της μάθησης με υπολογιστές με συναρπάζει.	1	2	3	4	5
56	Δεν θα δεχόμουν ποτέ μια δουλειά, όπου θα έπρεπε να εργάζομαι με υπολογιστές.	1	2	3	4	5
57	Απογοητεύομαι όταν σκέπτομαι ότι προσπαθώ να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
58	Οι υπολογιστές μπορούν να είναι χρήσιμο βοήθημα διδασκαλίας σε όλα σχεδόν μαθήματα.	1	2	3	4	5
59	Δεν νομίζω ότι θα έκανα υψηλού επιπέδου εργασίες με τους υπολογιστές.	1	2	3	4	5
60	Θα ήθελα να περνάω περισσότερη ώρα χρησιμοποιώντας υπολογιστές.	1	2	3	4	5
61	Νιώθω άνετα όταν έχω γύρω μου υπολογιστές.	1	2	3	4	5
62	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) βοηθάει το μαθητή να μάθει περισσότερα.	1	2	3	4	5

Σας ευχαριστώ πολύ για την συνεργασία σας

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APPENDIX B1: HEAD TEACHER QUESTIONNAIRE

CONFIDENTIAL

CODE

Head Teacher Questionnaire

The main objective of this questionnaire is to know the current state of ICT in Greek primary schools. The questionnaire is divided into three parts. In Part 1 you are asked to provide some basic information about yourself and your experience of computers. You are also asked to provide general information about the use of ICT in your school. Part 2 and 3 aims to elicit more detailed information by asking you to indicate the extent to which you agree or disagree with a number of statements provided.

Part 1

1. *Personal Information*

1.1. Name: _____

1.2. Sex: Male ☐ Female ☐

1.3. Age: under 25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐

41-45 ☐ 46-50 ☐ 51-55 ☐ over 55 ☐

1.4 Name of the school: _____

1.5 Contact address: _____

1.6 Contact fax / telephone number: _____

1.7 E-mail address: _____

1.8 Degree(s) and qualifications (s):

Pedagogical Academy ☐ Faculty of Primary Education ☐

Eksomiosi ☐ Maraslion Didaskalion of Primary Education ☐

Other degree ☐ Please specify: _____

Master ☐ Please specify: _____

PhD ☐ Please specify: _____

Other ☐ Please specify: _____

1.9 Years of teaching experience:

1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ over 25 ☐

1.10.How long have you been a head teacher at this school? _____

2. *General Information about your school*

2.1 Please indicate the characteristics of your school. (Please tick (√) all appropriate responses).

Urban		Experimental	
Semi-urban		School with hour extended programme	
Rural		Other (please specify):	

2.2 How many teaching staff is there in your school? _____

2.3 How many pupils are enrolled in your school? _____

2.4 Please indicate the area where most of the pupils in your school live. Please put a tick (√) in the appropriate response.

Rural		Outer area of large town or city	
Small town		Inner area of large town or city	
Other (please specify):			

2.5 Please indicate the school's overall use of computers, and the length of time they have been using each mode.

School computer use	**Period of time** (e.g. 3 years and 2 months)
School administration	
Individual teacher's personal use	
Teaching pupils (please specify: e.g. using ICT as object of study or ICT as tool to teach other subjects):	

2.6 How many of the teachers of your school are using computers in their teaching? _____

2.7 Which grades of pupils of your school are using computers in their lessons? Please indicate the number of pupils in each grade that use computers in their lessons. _____

_____

2.8 Is your school connected to the Internet? YES ☐ NO ☐

2.9 If YES, has your school created its own web site? YES ☐ NO ☐

2.10 Please indicate where computers are used for each of the following tasks in your school and by whom?

	You	**Deputy head teacher**	**Other Teachers**	**Other (please specify)**
Correspondence				
Time-tabling				
Worksheets				
Pupils records (e.g. profiles, reports)				
Budgeting				
Other school management (please specify):				

3. Hardware and other equipment

3.1 Please indicate in the following tables the number of computers available in your school for teaching/learning purposes.

For teaching and learning	Total number	Of the total number, how many:						
		Are over 3 years old?	Have multimedia facilities?	Linked to Internet?	Linked to an internal school network?	Located in computer laboratory?	Located in library?	Located in classrooms?
Desktop PC								
Desktop Apple Mac								
Laptop								
TOTAL								

3.2 Please indicate in the following tables the number of computers available in your school for administration purposes.

For management and Administration	Total number	Of the total number, how many:			
		Stand alone	Are over 3 years old?	Linked to Internet?	Linked to an internal school network?
Desktop PC					
Desktop Apple Mac					
Laptop					
TOTAL					

3.3 Please enter the number of items available in your school.

Items	Number	Items	Number
Printers		TV sets	
Scanners		Computer projectors	
Digital cameras		OHP projectors	
Video recorders		Other (please specify):	
Video cameras			

3.4 Do you have any further equipment on order? YES ☐ NO ☐

If YES, please specify what is ordered and when it is likely to be received. _____

4 Software

4.1 Please indicate the type of software available in your school. Please tick (√) all appropriate responses.

	Type of Software	Computers for teaching	Computers for administration
1	Word processing		
2	Spreadsheets		
3	Databases		
4	Logo		
5	Painting or drawing		
6	Programming languages (e.g. Pascal, Visual Basic, etc.)		
7	Authoring programmes (e.g. ToolBooks, AuthorWare, etc.)		
8	Multimedia Encyclopedias (CD-ROM)		
9	Presentation software		
10	Subject specific software		
11	Educational games		
12	Music composition software		
13	Simulations		
14	Measurement and Control		
15	Desktop publishing		
16	Word Wide Web		
17	Mailing software (e.g. e-mail)		
18	Tools/utilities (e.g. Antivirus, Archives, etc.)		
	Other (please specify):		

4.2 Has the school created its own software? YES ☐ NO ☐

4.3 If YES please indicate the types of software created. _____

_____

5. Computer experience and knowledge

5.1 Please tick one box on each line.

	none	a little	average	quite a lot	a lot
How much do you know about computers?	1	2	3	4	5
	no good	**weak**	**average**	**quite good**	**very good**
How good are you at using programs?	1	2	3	4	5

5.2 Please indicate your knowledge and expertise in computers. Please indicate by drawing a circle round the appropriate number.

I Know ...	none	a little	quite a lot	a lot
1. The difference between mainframe computers and personal computers.	1	2	3	4
2. The difference between the operating system and an application package.	1	2	3	4
3. The trends in hardware development in the past 30 years.	1	2	3	4
4. Criteria to judge the quality of a printer.	1	2	3	4
5. What "file extensions" are.	1	2	3	4

I Know ...	none	a little	quite a lot	a lot
6. What a "loop" means in programming.	1	2	3	4
7. What a "relational database" is like.	1	2	3	4
8. What a "bit" is defined as.	1	2	3	4
9. The difference between "RAM" and "ROM".	1	2	3	4
10. The difference between a word processor and a desktop publishing programme.	1	2	3	4
I can ...	**not at all**	**a little**	**well**	**very well**
1. Load software.	1	2	3	4
2. Format disks.	1	2	3	4
3. Check virus.	1	2	3	4
4. Manage files.	1	2	3	4
5. Connect computer to external devices.	1	2	3	4
6. Use help-facilities.	1	2	3	4
7. Create sub-directories.	1	2	3	4
8. Send an email.	1	2	3	4
9. Search the World Wide Web.	1	2	3	4
10. Download files from email or World Wide Web.	1	2	3	4

6. *Personal use of computers*

6.1 Do you have access to a computer for personal use outside of school?

YES ☐ NO ☐ If NO, please move on to section 7.

6.2 Who owns the computer you use outside of school (e.g. you, your husband/wife/partner)? _____

6.3 Please indicate which type of computer you use:

Desktop PC		Laptop		Desktop Apple Mac	

6.4 Please indicate **how often you use** computers for personal purpose outside of your workplace. Please answer each of the following sentences by circling the appropriate response.

	Never	about an hour each month	about an hour each week	several hours a week	more than an hour a day
Word processing	1	2	3	4	5
Spreadsheets	1	2	3	4	5
Databases	1	2	3	4	5
Desk-top publishing	1	2	3	4	5
Art/graphics software	1	2	3	4	5
CD-ROM software	1	2	3	4	5
E-mail	1	2	3	4	5
World Wide Web	1	2	3	4	5
Games	1	2	3	4	5
Other (please specify):	1	2	3	4	5

6.5 Please also indicate **how long** you use computers for personal purpose outside of your workplace.

	Period of time (e.g. 3 years and 2 months)		**Period of time** (e.g. 3 years and 2 months)
Word processing		CD-ROM software	
Spreadsheets		E-mail	
Databases		World Wide Web	
Desk-top publishing		Games	
Art/graphics software		Other (please specify):	

6.6 Do you have access to the Internet outside of your workplace? YES ☐ NO ☐

If NO, please move on to section 7.

6.7 Do you have an e-mail address? YES ☐ NO ☐

If NO, please go to section 7. If YES, how often do you check your e-mail?

Never	**Once/twice a month**	**Once a week**	**Every other Day**	**Every day**

7 Staff development training

7.1 Please indicate the time period (in hours) of each form of in-service training in ICT education **you** have received in your career. If you do not use computer or you have not received any training please move on to section8.

Location	**Hours of courses received**				
	Initial awareness course	**Short special course (e.g. using databases)**	**Advanced course**	**Working conference**	**Longer award bearing course**
In school					
In university					
LEA Centre					
On-line					
Private institute					
Other (please specify)					

8. Using computers for administration

8.1 Do you use computers for administrative purposes?

YES ☐ NO ☐ If you answered NO please move on to section 9.

8.2 Please, indicate **how often** you use computers for administrative purposes.

never	**once a month**	**twice a month**	**twice a week**	**every day**

8.3 Please, indicate **how long** you use computers for administrative purpose (e.g. 3 years and 2 months):

_____

_____

9. *Computer support*

9.1 Please indicate the kind of support you provide to your school for the development in the use of computers in education. Please choose a number for each item (1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot).

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot	
Hardware	
Support for acquisition of hardware for school management and administration.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for school management and administration.	
Support for acquisition of hardware for teaching purposes.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for teaching purposes.	
Software	
Support for acquisition of new software for teaching purposes.	
Support for acquisition of new software for management and administration.	
Organization/administration	
Organization and management (including timetabling) of computer resources.	
Technical assistance to teachers.	
Provision of training opportunities for teachers	
The use of computer facilities outside school hours by teachers.	
The use of computer facilities outside school hours by students.	
The use of computer facilities outside school hours for staff development.	
Establishment of computer laboratories.	
Support for the connection to the Internet.	
Support for the creation of a web site.	
On-line access, provision and support.	
Curriculum applications	
How teachers should use computers in their teaching.	
How teachers should use computers in specific subjects.	
How teachers should organize pupils in the classroom.	
How teachers should incorporate use of the Internet into their teaching.	
Other (please specify):	

9.2 Has your school been running projects to help teachers and pupils using computers funded by the district, Ministry of Education, Universities, European Union, parents, or other institution?

YES ☐ NO ☐

If NO, please go to Part 2. If YES, please indicate the project(s) your school has been involved in during the last 5 years.

Name of project(s)	Purpose of project(s)	Funded by	Duration	Ages of pupils

Part 2

Please explain in a few words what Information Communication Technology (ICT) means to you.

_____

_____

_____

In the questionnaire you are about to fill out, we ask you questions which make use of rating scales with seven options. You are to check mark (√) the option that best describes your opinion. More specifically, in this questionnaire we are mainly concerned with head teachers' views toward supporting the uptake of Information Communication Technology (ICT) in their schools.

1. I intend to support the uptake of ICT in my school during the next three months.

extremely unlikely	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	extremely likely

2. I will try to support the uptake of ICT in my school during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

3. I plan to support the uptake of ICT in my school during the next three months.

strongly disagree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly agree

4. For me to support the uptake of ICT in my school during the next three months is

harmful	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	beneficial
pleasant	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unpleasant
good	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	bad
worthless	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	valuable
enjoyable	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unenjoyable

5. Most people who are important to me think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

6. It is expected of me that I support the uptake of ICT in my school during the next three months.

extremely likely	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	extremely unlikely

7. The people in my life whose opinions I value would

approve	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	disapprove

of my supporting the uptake of ICT in my school during the next three months.

8. Most people who are important to me support the uptake of ICT in schools.

completely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	completely false

9. The people in my life whose opinions I value

support	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	do not support

the uptake of ICT in schools

10. For me to support the uptake of ICT in my school during the next three months would be

impossible	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	possible

11. If I wanted to I could support the uptake of ICT in my school during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

12. How much control do you believe you have over supporting the uptake of ICT in your school during the next three months?

no control	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	complete control

13. It is mostly up to me whether or not I support the uptake of ICT in my school during the next three months.

strongly agree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly disagree

Behavioural belief strength

Supporting the uptake of Information Communication Technology in my school during the next three months will...		
1	*...enrich pupils' knowledge.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
2	*... help the weak pupils improve.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
3	*...help pupils learn more easily.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
4	*...make the lessons more fun for the pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
5	*...increase pupils' interest in learning.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
6	*...stimulate creativity in pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
7	*...significantly improve the overall quality of pupils' education.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
8	*...be a waste of time for pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
9	*...help pupils work with one another.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
10	*...help pupils to find a job easier in future.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
11	*...help teachers to improve their ICT expertise.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
12	*...allow teachers greater access to a computer for personal and professional use.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Supporting the uptake of Information Communication Technology in my school during the next three months will...		
13	*...make lessons more interesting for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
14	*...make the lessons more enjoyable for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
15	*...make lessons more diverse.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
16	*...make preparation for lessons easier for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
17	*...help teachers organise better their lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
18	*...make preparation for lessons more time – consuming for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
19	*...restrict the content of lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
20	*...make it more difficult for teachers to control the class.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
21	*...give teachers more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
22	*...improve teachers' productivity.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
23	*...cause conflicts among teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
24	*...restrict teachers' role.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
25	*...help teachers communicate with colleagues in other schools.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
26	*...save teachers more time and work.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
27	*...cause teachers stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
28	*...improve communication among the pupils and teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
29	*...create problems in the current curriculum.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
30	*...create problems in the school timetable.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
31	*...support the communication of my school with other schools in Greece and abroad.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
32	*...help school's organisation better.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
33	*...help the school's personnel to cooperate.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
34	*...help my school to implement other innovations.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
35	*...give me more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
36	*...cause me stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Outcome evaluation

1	*Enriching pupils' knowledge is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
2	*Helping the weak pupils improve is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

3	*Helping pupils' learning more easily is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
4	*Making the lessons more fun for the pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
5	*Increasing pupils' interest in learning is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
6	*Stimulating creativity in pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
7	*Improving the overall quality of pupils' education is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
8	*Waste of time for pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
9	*Helping pupils work with one another is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
10	*Helping pupils find a job easier in future is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
11	*Improving teachers ICT expertise is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
12	*Allowing teachers greater access to a computer for personal and professional use is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
13	*Making lessons more interesting for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
14	*Making lessons more enjoyable for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
15	*Making lessons more diverse is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
16	*Making preparation for lessons easier for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
17	*Organising lessons better for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
18	*Making preparation for lessons more time - consuming for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
19	*Restricting the content of lessons is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
20	*Making the control of the class more difficult for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
21	*Giving teachers more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
22	*Improving teachers' productivity is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
23	*Having teachers conflicting with their colleagues is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
24	*Restricting teachers' role is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
25	*Helping teachers communicate with colleagues in other schools is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
26	*Saving teachers more time and work is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
27	*Causing teachers stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
28	*Improving communication among pupils and teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
29	*Creating problems in the current curriculum is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

30	*Creating problems in the school timetable is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
31	*Supporting the communication of my school with other schools in Greece and abroad is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
32	*Helping school's better organisation is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
33	*Helping the school's personnel to cooperate is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
34	*Helping school to implement other innovations is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
35	*Having more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
36	*Having stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

Normative belief strength

1. The school counsellor thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

2. The district officer thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

3. Parents' association think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

4. Pupils think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

5. Head teachers of other schools think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

6. Teachers think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

7. The Ministry of Education thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

8. Universities think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

9. Private computer companies think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

10. Local authorities (Municipality, Prefecture) think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

11. Greek primary teachers' federation thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

12. The Pedagogical Institute thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in my school during the next three months.

Motivation to comply

Generally speaking, how much do you want to do what...		
1	*...your school counsellor thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
2	*...your district officer thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
3	*...parents' association think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
4	*... pupils of your school think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
5	*...your colleagues (other head teachers) think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
6	*...teachers of your school think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
7	*...the Ministry of Education thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
8	*...universities think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
9	*...private computer companies think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
10	*...local authorities (Municipality, Prefecture) think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
11	*...Greek primary teachers' federation thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
12	*...the Pedagogical Institute thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

Control belief strength

1. I expect that sufficient number of computers and peripherals (e.g. printer) will be available at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

2. I expect that enough software for teaching purposes will be available at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

3. I expect that technical assistance for operating and maintaining computers will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

4. I expect that adequate financial support for teachers and me will be provided at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

5. I expect that an appropriate computer room will be provided in my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

6. I expect that there will be a small number of pupils in each class in my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

7. I expect that enough computer time for each class will be scheduled at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

8. I expect that computers' use will be integrated in the existing prescribed class curriculum at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

9. I expect that teachers will have enough time to develop lessons in which computers are used at my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

10 I expect that support will be provided by teachers of my school during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

11. I expect that support will be provided at my school by the district officer during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

12. I expect that support will be provided at my school by the school counsellor during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

13. I expect that support will be provided at my school by the head teachers of other schools during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

14. I expect that support will be provided at my school by the parents' association during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

15. I expect that support will be provided by the Ministry of Education at my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

16. I expect that support will be provided by the Pedagogical Institute at my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

17. I expect that support will be provided by the local authorities (Municipality, Prefecture) at my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

18. I expect that pupils will want to use ICT of my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

19. I expect that enough connections to the Internet will be provided at my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

20. I expect that sufficient training opportunities on the pedagogical use of computers for teachers will be provided at my school during the next three months.

strongly disagree	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	strongly agree

Control belief power

1. The availability of sufficient number of computer and peripherals (e.g. printer) at my school during the next three months would make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to support the uptake of ICT.

2. The availability of enough software for teaching purposes at my school during the next three monthswould make it

much more difficult	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	much easier

for me to support the uptake of ICT.

3. Being provided with technical assistance for operating and maintaining computers at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

4. Adequate financial support for the teachers and for me at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

5. An appropriate computer room in my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

6. The small number of pupils in each class during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

7. The scheduling of enough computer time for each class at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

8. The integration of computer use in the existing prescribed class curriculum at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

9. Enough time to develop lessons in which computers are used at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

10. The support of the teachers of my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

11 The support of the district officer at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

12. The support of the school counsellor at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

13. The support of the head teachers of other schools at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

14. The support of the parents' association at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

15. The support of the Ministry of Education at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

16. The support of the Pedagogical Institute at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

17. The support of the local authorities (Municipality, Prefecture) at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

18. For pupils to want to use ICT at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

19. The provision of enough connections to the Internet at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

20. Being provided with sufficient training opportunities on the pedagogical use of computers for teachers at my school during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

Part 3

Attitudes towards computers

Please circle the appropriate number to indicate your agreement or disagreement with each statement.

1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
1	I am tired of using a computer.	1	2	3	4	5
2	Computers are not exciting.	1	2	3	4	5
3	If given the opportunity, I would like to learn about and use computers.	1	2	3	4	5
4	I think that computers are very easy to use.	1	2	3	4	5
5	Computers could enhance remedial instruction.	1	2	3	4	5
6	I will do as little work with computers as possible.	1	2	3	4	5
7	In-service training courses about computers should be made compulsory.	1	2	3	4	5
8	Using computers in class leads to more productivity among students.	1	2	3	4	5
9	I concentrate on a computer when I use one.	1	2	3	4	5
10	I think working with computers would be enjoyable and stimulating.	1	2	3	4	5
11	I would like to take part in a computer course to learn more about computers.	1	2	3	4	5
12	I would work harder if I could use computers more often.	1	2	3	4	5
13	I sometimes feel intimidated when I have to use a computer.	1	2	3	4	5
14	The challenge of solving problems with computers does not appeal to me.	1	2	3	4	5
15	Computers harm relations between people.	1	2	3	4	5
16	I feel comfortable working with a computer.	1	2	3	4	5
17	I am sure I could do work with computers.	1	2	3	4	5
18	Working with computers in class distorts the social climate.	1	2	3	4	5
19	When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.	1	2	3	4	5
20	I enjoy doing things on a computer.	1	2	3	4	5
21	Computers make me feel uneasy and confused.	1	2	3	4	5
22	I am sure I could learn a computer language.	1	2	3	4	5
23	Students are more attentive when computers are used in class.	1	2	3	4	5
24	I know that computers give me opportunities to learn new things.	1	2	3	4	5
25	Computers are difficult to use.	1	2	3	4	5
26	The use of e-mail increases motivation for the course.	1	2	3	4	5
27	I will use computers many ways in my life.	1	2	3	4	5
28	I can't think of any way that I will use computers in my career.	1	2	3	4	5
29	Computers have become too dominant over us.	1	2	3	4	5
30	Learning about computers is a waste of time.	1	2	3	4	5
31	Computers in school enhance students' creativity.	1	2	3	4	5
32	I would like to learn more about computers.	1	2	3	4	5
33	I try to keep myself informed about technological changes.	1	2	3	4	5
34	I do not enjoy talking with others about computers.	1	2	3	4	5
35	Computers help to teach more effectively.	1	2	3	4	5
36	Computers do not scare me at all.	1	2	3	4	5
37	Using a computer prevents me from being creative.	1	2	3	4	5

1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
38	The achievement of students can be increased when using computers for teaching.	1	2	3	4	5
39	I would like to learn more about computer as teaching aids.	1	2	3	4	5
40	I would like working with computers.	1	2	3	4	5
41	The use of e-mail makes the course more interesting.	1	2	3	4	5
42	I don't mind learning about computers.	1	2	3	4	5
43	Working with computer makes me nervous.	1	2	3	4	5
44	Computers are valuable tools for improving the quality of a child's education.	1	2	3	4	5
45	I will probably never learn to use a computer.	1	2	3	4	5
46	Social contacts are negatively affected by the use of computers.	1	2	3	4	5
47	Computers can be used successfully with courses which demand creative activities.	1	2	3	4	5
48	Learning about computers is interesting.	1	2	3	4	5
49	I hesitate to use a computer for fear of making mistakes I cannot correct.	1	2	3	4	5
50	We will lose control over computers one day.	1	2	3	4	5
51	I have a lot of self - confidence when it comes to working with computers.	1	2	3	4	5
52	Computers would help students work with one another.	1	2	3	4	5
53	I believe that it is very important for me to learn how to use a computer.	1	2	3	4	5
54	The use of e-mail makes the student feel more involved.	1	2	3	4	5
55	The challenge of learning about computers is exciting.	1	2	3	4	5
56	Computers reduce humans to number.	1	2	3	4	5
57	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
58	Computers can be a useful instructional aid in almost all subject areas.	1	2	3	4	5
59	I don't think I would do advanced computers work.	1	2	3	4	5
60	I would like to spend more time using a computer.	1	2	3	4	5
61	I feel at ease when I am around computers.	1	2	3	4	5
62	The use of e-mail helps the student to learn more.	1	2	3	4	5

Thank you very much for your cooperation

George J. Koutromanos, PhD student

School of Social Science and Public Policy
Department of Education and Professional Studies
King's College London University of London

APPENDIX B2: HEAD TEACHER QUESTIONNAIRE
(Greek version)

ΕΜΠΙΣΤΕΥΤΙΚΟ

ΚΩΔΙΚΟΣ

Ερωτηματολόγιο Διευθυντή

Βασικός σκοπός αυτού του ερωτηματολογίου είναι η διερεύνηση της υπάρχουσας κατάστασης των υπολογιστών στα ελληνικά δημοτικά σχολεία. Το ερωτηματολόγιο χωρίζεται σε τρία μέρη. Στο πρώτο μέρος σας ζητείτε να παρουσιάσετε ορισμένες βασικές πληροφορίες για τον εαυτό σας και την εμπειρία σας στους υπολογιστές. Σας ζητείτε επίσης να δώσετε γενικές πληροφορίες σχετικά με τη χρήση υπολογιστών στο σχολείο σας. Στο δεύτερο και τρίτο μέρος επιδιώκεται να συλλεχθούν πιο λεπτομερείς πληροφορίες ζητώντας σας να προσδιορίσετε κατά πόσον συμφωνείτε ή διαφωνείτε με έναν αριθμό δηλώσεων που παρατίθενται.

Μέρος 1ο

1 Προσωπικές Πληροφορίες

1.1. Όνομα: _____

1.2. Φύλο: Άνδρας ☐ Γυναίκα ☐

1.3. Ηλικία: κάτω των 25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ πάνω από 55 ☐

1.4 Όνομα σχολείου: _____

1.5 Διεύθυνση επικοινωνίας: _____

1.6 Φαξ / Τηλέφωνο επικοινωνίας: _____

1.7 Διεύθυνση ηλεκτρονικού ταχυδρομείου (E-mail): _____

1.8 Πτυχίο (α) και ειδικότητα (ες):

Παιδαγωγική Ακαδημία ☐ Παιδαγωγικό Τμήμα Δ.Ε. ☐

Πτυχίο Εξομοίωσης ☐ Μαράσλειο Διδασκαλείο Δ.Ε. ☐

Άλλο πτυχίο ☐ Παρακαλώ προσδιορίστε: _____

Μεταπτυχιακό (Master) ☐ Παρακαλώ προσδιορίστε: _____

Διδακτορικό (PhD) ☐ Παρακαλώ προσδιορίστε: _____

Άλλο ☐ Παρακαλώ προσδιορίστε: _____

1.9 Έτη διδακτικής εμπειρίας: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ πάνω από 25 ☐

1.10 Πόσο διάστημα είστε διευθυντής /-ντρια στο συγκεκριμένο σχολείο; _____

2 Γενικές Πληροφορίες

2.1 Παρακαλώ να προσδιορίσετε τα χαρακτηριστικά του σχολείου σας. (Παρακαλώ επιλέξτε (√) όλες τις σχετικές απαντήσεις).

Αστικό		Πειραματικό	
Ημιαστικό		Ολοήμερο σχολείο	
Επαρχιακό		Άλλο (παρακαλώ προσδιορίστε):	

2.2 Πόσοι εκπαιδευτικοί υπηρετούν στο σχολείο σας; _____

2.3 Πόσοι από τους εκπαιδευτικούς του σχολείου σας, χρησιμοποιούν υπολογιστές στη διδασκαλία τους; _____

2.4 Πόσοι μαθητές είναι εγγεγραμμένοι στο σχολείο σας: _____

2.5 Ποιες τάξεις και πόσοι μαθητές του σχολείου σας χρησιμοποιούν υπολογιστές στα μαθήματά τους;
_____

2.6 Παρακαλώ να προσδιορίσετε την περιοχή όπου κατοικεί η πλειοψηφία των μαθητών του σχολείου σας. Παρακαλώ επιλέξτε (√) τη σχετική απάντηση.

Επαρχία		Ευρύτερη περιοχή μεγάλου αστικού κέντρου ή πόλης	
Μικρή πόλη		Κεντρικές συνοικίες μεγάλου αστικού κέντρου ή πόλης	
Άλλο (παρακαλώ προσδιορίστε):			

2.7 Παρακαλώ να προσδιορίσετε το **είδος χρήσης** των υπολογιστών στο σχολείο σας και τη **χρονική διάρκεια** που γίνεται αυτή η χρήση. Παρακαλώ επιλέξτε (√) όλες τις σχετικές απαντήσεις.

Χρήση υπολογιστών στο σχολείο για:	**Χρονική περίοδος** (π.χ. 3 χρόνια και 2 μήνες)
Διοίκηση σχολείου	
Διδασκαλία των μαθητών	
Προσωπική χρήση δασκάλου	

2.8 Έχει το σχολείο σας πρόσβαση στο διαδίκτυο (Internet); ΝΑΙ ☐ ΟΧΙ ☐

2.9 Εάν ΝΑΙ έχει δημιουργήσει δική του ιστοσελίδα; ΝΑΙ ☐ ΟΧΙ ☐

2.10 Παρακαλώ προσδιορίστε σε ποιους από τους ακόλουθους τομείς γίνεται χρήση υπολογιστών και από ποιόν;

	Εσείς	**Άλλοι δάσκαλοι**	**Υποδιευ-θυντής**	**Άλλος (παρακαλώ προσδιορίστε):**
Αλληλογραφία				
Ωρολόγιο πρόγραμμα				
Φυλλάδια εργασιών				
Αρχεία μαθητών (π.χ. βιογραφικό, βαθμολογία)				
Οικονομικά (Προϋπολογισμός)				
Άλλα είδη σχολικής διαχείρισης (παρακαλώ προσδιορίστε):				

3. Τεχνικός και άλλος εξοπλισμός

3.1 Υπολογιστές για διδακτικούς και διοικητικούς σκοπούς. Παρακαλώ να προσδιορίσετε στον ακόλουθο πίνακα τον αριθμό των υπολογιστών (συνδεδεμένων με το διαδίκτυο ή όχι) που διατίθενται στο σχολείο σας για διδακτικούς / μαθησιακούς και διοικητικούς σκοπούς.

Για διδασκαλία και μάθηση	**Σύνολο**	**Από τον συνολικό αριθμό πόσοι:**					
		Είναι άνω των 3 ετών;	**Διαθέτουν διευκο-λύνσεις πολυμέσων;**	**Είναι συνδεδε-μένοι με το δια-δίκτυο;**	**Βρίσκονται σε εργαστήριο πληροφορι-κής;**	**Βρίσκονται στη βιβλιοθή-κη;**	**Βρίσκονται σε σχολικές αίθουσες;**
Desktop PC							
Desktop Apple Mac							
Φορητοί Laptop							
Άλλο (παρακαλώ προσδιορίστε):							
Σύνολο							

Για τη διαχείριση και διοίκηση	Σύνολο	Από τον συνολικό αριθμό πόσοι είναι:			
		Αυτόνο-μοι;	Άνω των τριών ετών;	Συνδεδεμένοι στο διαδίκτυο;	Συνδεδεμένοι με ένα εσωτερικό σχολικό δίκτυο;
Desktop PC					
Desktop Apple Mac					
Laptop					
Σύνολο					

3.2 Παρακαλώ προσδιορίστε τον αριθμό των μηχανημάτων που διατίθενται στο σχολείο σας.

Αντικείμενα	Αριθμός	Αντικείμενα	Αριθμός
Εκτυπωτές		Video cameras	
Σαρωτές (Scanners)		Τηλεοράσεις	
Plotters		Προβολείς υπολογιστών	
Ψηφιακές κάμερες		Επιδιασκόπια	
Video recorders		Άλλο:	

3.3 Έχετε παραγγείλει επιπλέον εξοπλισμό; ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΝΑΙ, παρακαλώ να προσδιορίσετε το είδος της παραγγελίας και πότε αναμένεται να ληφθεί;

_____

_____

4. Λογισμικό

4.1 Παρακαλώ να προσδιορίσετε το είδος του λογισμικού που διατίθενται στο σχολείο σας. Παρακαλώ επιλέξτε (√) όλες τις σχετικές απαντήσεις.

	Είδος λογισμικού	Υπολογιστές για διδασκαλία	Υπολογιστές για τη διοίκηση
1	Επεξεργαστής κειμένου		
2	Λογιστικά φύλλα		
3	Βάσεις δεδομένων		
4	Logo		
5	Ζωγραφική / σχέδιο		
6	Γλώσσες προγραμματισμού (π.χ. Visual Basic, κλπ.)		
7	Authoring programmes (e.g.ToolBooks, AuthorWare, κλπ.)		
8	Εγκυκλοπαίδειες πολυμέσων (CD-ROM)		
9	Εκπαιδευτικό λογισμικό παρουσίασης		
10	Λογισμικό για συγκεκριμένο μάθημα		
11	Εκπαιδευτικά παιχνίδια		
12	Λογισμικό μουσικής σύνθεσης		
13	Προσομοίωσης		
14	Μέτρησης και ελέγχου		
15	Desktop publishing		
16	Word Wide Web		
17	Λογισμικό ταχυδρομείου (e.g. E-mail)		
18	Εργαλεία - βοηθήματα (π.χ λογισμικό για τον έλεγχο ιών)		
	Άλλο (παρακαλώ προσδιορίστε):		

4.2 Έχει δημιουργήσει το σχολείο το δικό του λογισμικό; ΝΑΙ ☐ ΟΧΙ ☐

4.3 Εάν ΝΑΙ παρακαλώ προσδιορίστε τα είδη λογισμικού που δημιουργήθηκαν: _____

_____

5. Η εμπειρία και οι γνώσεις σας στους υπολογιστές

5.1 Παρακαλώ κυκλώστε την απάντηση που σας αντιπροσωπεύει σε κάθε σειρά.

	Καθόλου	Λίγο	Μέτρια	Αρκετά	Πολύ
Πόσο ευρείες γνώσεις έχετε για τους υπολογιστές:	1	2	3	4	5
	Όχι καλοί	Αδύναμοι	Μέτριοι	Αρκετά καλοί	Πολύ καλοί
Πόσο καλοί είστε στη χρήση προγραμμάτων:	1	2	3	4	5

5.2 Παρακαλώ να προσδιορίσετε τις γνώσεις και την πείρα σας στους υπολογιστές. Παρακαλώ προσδιορίστε κυκλώνοντας τον κατάλληλο αριθμό.

Γνωρίζω...	**καθόλου**	**ελάχι-στα**	**αρκετά**	**πολύ**
1. Τη διαφορά μεταξύ των υπολογιστών κεντρικού πλαισίου και των προσωπικών υπολογιστών.	1	2	3	4
2. Τη διαφορά μεταξύ λειτουργικού συστήματος και ενός πακέτου εφαρμογών.	1	2	3	4
3. Τις τάσεις εξέλιξης του τεχνικού εξοπλισμού (hardware) τα τελευταία 30 χρόνια.	1	2	3	4
4. Τα κριτήρια αξιολόγησης της ποιότητας ενός εκτυπωτή.	1	2	3	4
5. Τι είναι οι προεκτάσεις αρχείων (file extensions).	1	2	3	4
6. Τη σημασία της λέξης "loop" στη γλώσσα προγραμματισμού.	1	2	3	4
7. Τι είναι η βάση δεδομένων.	1	2	3	4
8. Πώς ορίζεται ένα "bit".	1	2	3	4
9. Τη διαφορά μεταξύ "RAM" και "ROM".	1	2	3	4
10. Τη διαφορά μεταξύ ενός επεξεργαστή κειμένου και του προγράμματος επεξεργασίας σελίδων (desktop publishing programme).	1	2	3	4
Μπορώ...	**καθόλου**	**ελάχι-στα**	**καλά**	**πολύ καλά**
1. Να φορτώνω λογισμικό στη μνήμη του υπολογιστή.	1	2	3	4
2. Να κάνω "format" στις δισκέτες.	1	2	3	4
3. Να κάνω έλεγχο για ιούς.	1	2	3	4
4. Να διαχειρίζομαι αρχεία.	1	2	3	4
5. Να συνδέω τον υπολογιστή με εξωτερικές συσκευές.	1	2	3	4
6. Να χρησιμοποιώ την παροχή ευκολιών βοηθείας.	1	2	3	4
7. Να δημιουργώ υποφακέλους.	1	2	3	4
8. Να στέλνω ηλεκτρονικό μήνυμα (e-mail).	1	2	3	4
9. Να αναζητώ πληροφορίες στο διαδίκτυο (Internet).	1	2	3	4
10. Να κατεβάζω αρχεία από ηλεκτρονικά μηνύματα ή από το διαδίκτυο.	1	2	3	4

6 *Προσωπική χρήση υπολογιστών (εκτός σχολείου)*

6.1 Έχετε πρόσβαση σε υπολογιστή για προσωπική χρήση εκτός σχολείου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 7.

6.2 Σε ποιον ανήκει ο υπολογιστής που χρησιμοποιείτε εκτός σχολείου (π.χ. σε εσάς, στον/στη σύζυγό σας/σύντροφό σας, Ίντερνετ καφετέρια); _____

6.3 Παρακαλώ να προσδιορίσετε το είδος του υπολογιστή που χρησιμοποιείτε:

Desktop PC		**Φορητό (Laptop)**		**Desktop Apple Mac**	

6.4 Παρακαλώ να προσδιορίσετε πόσο συχνά χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός σχολείου.

	Ποτέ	**Περίπου μια ώρα το μήνα**	**Περίπου μια ώρα την εβδομάδα**	**Αρκετές ώρες την εβδομάδα**	**Περισσότερο από μια ώρα την ημέρα**
Επεξεργαστής κειμένου	1	2	3	4	5
Λογιστικά φύλλα	1	2	3	4	5
Βασεις δεδομένων	1	2	3	4	5
Επεξεργασία σελίδων (Desk-top publishing)	1	2	3	4	5
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής	1	2	3	4	5
CD-ROM	1	2	3	4	5
Ηλεκτρονικό ταχυδρομείο (E-mail)	1	2	3	4	5
Διαδίκτυο (Internet)	1	2	3	4	5
Παιχνίδια	1	2	3	4	5
Άλλο (παρακαλώ προσδιορίστε):	1	2	3	4	5

6.5 Παρακαλώ να προσδιορίσετε το χρονικό διάστημα που χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός εργασιακού χώρου.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)		**Χρονική περίοδος** (π.χ. 3 χρόνια και 2 μήνες)
Επεξεργαστής κειμένου		CD-ROM	
Λογιστικά φύλλα		Ηλ. ταχυδρομείο (E-mail)	
Βάσεις δεδομένων		Διαδίκτυο (Internet)	
Επεξεργασία σελίδων (Desk-top publishing)		Παιχνίδια	
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής		Άλλο (παρακαλώ προσδιορίστε):	

6.6 Έχετε πρόσβαση στο διαδίκτυο (Internet) εκτός σχολείου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 7.

6.7 Διαθέτετε ηλεκτρονική διεύθυνση (E-mail address); ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 7. Εάν ΝΑΙ πόσο συχνά ελέγχετε τα ηλεκτρονικά σας μηνύματα (e-mail);

Ποτέ	Μια φορά / δυο φορές το μήνα	Μια φορά την εβδομάδα	Κάθε δεύτερη μέρα	Κάθε μέρα

7. Ενδο - εργασιακή επιμόρφωση / κατάρτιση

7.1 Παρακαλώ να προσδιορίσετε τον αριθμό κάθε είδους επαγγελματικής επιμόρφωσης/κατάρτισης που λάβατε στον τομέα των υπολογιστών στην εκπαίδευση (π.χ. 30 ώρες σε τμήμα αρχαρίων από το Πανεπιστήμιο).

Τόπος	Σύνολο ωρών				
	Τμήμα αρχαρίων	Εξειδικευμένο τμήμα μικρής διάρκειας (π.χ. χρήση βάσης δεδομένων)	Τμήμα προχωρημένων	Συνέδριο εργασίας	Μακράς χρονικής διάρκειας τμήμα με απονομή πτυχίου
Στο σχολείο					
Στο πανεπιστήμιο					
Στα ΠΕΚ					
Στο διαδίκτυο					
Σε ιδιωτικό οργανισμό					
Αλλού (παρακαλώ προσδιορίστε):					

8. Χρήση υπολογιστών στη διοίκηση

8.1 Χρησιμοποιείτε ως διευθυντής υπολογιστές στο σχολείο για διοικητικούς σκοπούς; ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 9.

8.2 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιείτε υπολογιστές** ως διευθυντής για διοικητικούς σκοπούς.

Ποτέ	Μια φορά τον μήνα	Δύο φορές τον μήνα	Δύο φορές την εβδομάδα	Κάθε μέρα

8.3 Παρακαλώ να προσδιορίσετε το **χρονικό διάστημα που χρησιμοποιείτε** ως διευθυντής υπολογιστές για διοικητικούς σκοπούς (π.χ. 3 χρόνια και 2 μήνες): _____

9. Υποστήριξη για τους υπολογιστές

9.1 Παρακαλώ να προσδιορίσετε το είδος και τον βαθμό της υποστήριξης που παρέχετε στο σχολείο σας για την εξέλιξή του ως προς την χρήση υπολογιστών στην εκπαίδευση. Παρακαλώ επιλέξτε έναν αριθμό σε κάθε πρόταση **(1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ).**

1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ	
Τεχνικός εξοπλισμός	
Υποστήριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για τη σχολική διαχείριση και διοίκηση.	
Υποστηριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για διδακτικούς σκοπούς.	
Υποστήριξη για την συντήρηση τεχνικού εξοπλισμού (σύγχρονος εξοπλισμός, δίκτυο, επισκευή και συντήρηση εξοπλισμού) για τη σχολική διαχείριση και διοίκηση.	
Υποστήριξη για την συντήρηση τεχνικού εξοπλισμού (σύγχρονος εξοπλισμός, δίκτυο, επισκευή και συντήρηση εξοπλισμού) για διδακτικούς σκοπούς.	
Λογισμικό	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διδακτικούς σκοπούς.	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διαχείριση και διοίκηση.	
Οργάνωση/διοίκηση	
Οργάνωση και διαχείριση (συμπεριλαμβανομένου προγραμματισμού) των πηγών του υπολογιστή.	
Τεχνική υποστήριξη σε δασκάλους.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους δασκάλους.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους μαθητές.	
Χρήση των υπολογιστών για την επιμόρφωση του προσωπικού εκτός σχολικού προγράμματος.	
Πρόσβαση στο διαδίκτυο, παροχή και υποστήριξη.	
Δημιουργία εργαστηρίου πληροφορικής.	
Υποστήριξη για την σύνδεση με το διαδίκτυο.	
Υποστήριξη για την δημιουργία ιστοσελίδας.	
Παροχή επιμορφωτικών δυνατοτήτων για δασκάλους.	
On-line πρόσβαση, παροχή και υποστήριξη.	
Εφαρμογές αναλυτικού προγράμματος	
Πώς οι δάσκαλοι να χρησιμοποιούν τους υπολογιστές στην διδασκαλία τους.	
Πως οι δάσκαλοι να χρησιμοποιούν υπολογιστές σε συγκεκριμένα μαθήματα.	
Πώς οι δασκαλοι να οργανώνουν τους μαθητές στην τάξη.	
Πώς οι δάσκαλοι να ενσωματώνουν την χρήση του διαδικτύου (Internet) στην διδασκαλία τους.	
Άλλο (παρακαλώ προσδιορίστε):	

9.2 Έχει αναλάβει το σχολείο σας προγράμματα για να βοηθήσει τους δασκάλους και τους μαθητές στη χρήση των υπολογιστών, χρηματοδοτούμενα από την Νομαρχία, το Υπουργείο Εθνικής Παιδείας και Θρησκευμάτων, από Πανεπιστήμια, την Ευρωπαϊκή Ένωση, από τους γονείς ή άλλα ιδρύματα;

ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ, παρακαλώ προχωρήστε στο δεύτερο μέρος (επόμενη σελίδα). Εάν απαντήσατε ΝΑΙ, παρακαλώ προσδιορίστε τα προγράμματα που συμμετείχε το σχολείο σας κατά τα τελευταία 5 χρόνια.

Όνομα προγράμματος	Σκοπός του προγράμματος	Χρηματοδοτούμενο από:	Χρονική διάρκεια	Ηλικίες μαθητών

Μέρος 2

Παρακαλώ γράψτε εν συντομία τι σημαίνει για σας ο όρος Τεχνολογίες της Πληροφορίας και της Επικοινωνίας (ΤΠΕ):

_____

_____

_____

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν κατά πόσο σκοπεύετε να υποστηρίξετε την εισαγωγή και εφαρμογή των Τεχνολογιών της Πληροφορίας και της Επικοινωνίας (ΤΠΕ) στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προτίθεμαι να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

εντελώς απίθανο	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πολύ πιθανό

2. Θα προσπαθήσω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

3. Σχεδιάζω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ εντελώς	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

4. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών είναι για μένα:

επιβλαβής	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	ευεργετική
ευχάριστη	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δυσάρεστη
καλή	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	κακή
μάταια	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	αξιόλογη
διασκεδαστική	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	βαρετή

5. Η πλειοψηφία των πιο σημαντικών για μένα ατόμων πιστεύουν ότι:

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

6. Αναμένεται από μένα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

πολύ πιθανό	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	εντελώς απιθανο

7. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου θα

επιδοκιμάσουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	αποδοκιμασουν

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

8 Η πλειοψηφία των πιο σημαντικών για μένα ατόμων υποστηρίζουν την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθες

9. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου

υποστηρίζουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν υποστηρίζουν

την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

10. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα ήταν για μένα

απίθανη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πιθανή

11. Εάν ήθελα θα μπορούσα εύκολα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απολυτα αναληθές

12. Πόσο πιστεύετε ότι μπορείτε να ελέγξετε την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών:

καθολου	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	απόλυτα

13. Εξαρτάται κυρίως από μένα εάν θα υποστηρίξω ή όχι την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

συμφωνώ απόλυτα	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	διαφωνώ κάθετα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πλεονεκτήματα και τα μειονεκτήματα της υποστήριξης της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών ..		
1	...θα εμπλουτίσει τις γνώσεις των μαθητών	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
2	...θα βοηθήσει τους αδύνατους μαθητές να βελτιωθούν.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
3	...θα βοηθήσει τους μαθητές να μαθαίνουν πιο εύκολα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
4	...θα κάνει πιο ευχάριστο το μάθημα για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
5	...θα αυξήσει το ενδιαφέρον των μαθητών για μάθηση.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
6	...θα ενθαρρύνει τη δημιουργικότητα στους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
7	...θα βελτιώσει σημαντικά τη συνολική ποιότητα της εκπαίδευσης των μαθητών.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
8	...θα ειναι χάσιμο χρόνου για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
9	...θα βοηθήσει τους μαθητές στη μεταξύ τους συνεργασία.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
10	...θα βοηθήσει τους μαθητές να βρουν ευκολότερα δουλειά στο μέλλον.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
11	...θα βοηθήσει τους δασκάλους να βελτιώσουν τις γνώσεις τους στους υπολογιστές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
12	...θα επιτρέψει στους δασκάλους να έχουν μεγαλύτερη πρόσβαση στον υπολογιστή για προσωπική και επαγγελματική χρήση.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
13	...θα κάνει τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
14	...θα κάνει τα μαθήματα πιο ευχάριστα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
15	...θα κάνει τα μαθήματα περισσότερο ποικίλα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
16	...θα κάνει την προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
17	...θα βοηθήσει τους δασκάλους να οργανώσουν καλύτερα τα μαθήματά τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
18	...θα κάνει την προετοιμασία των μαθημάτων περισσότερο χρονοβόρα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
19	...θα περιορίσει το περιεχόμενο διδασκαλίας των μαθημάτων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
20	...θα κάνει πιο δύσκολο τον έλεγχο της τάξης.	πολύ πιθανό: ___:___:___:___:___:___: εντελώς απίθανο 7 6 5 4 3 2 1
21	...θα προσδώσει μεγαλύτερο κύρος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
22	...θα βελτιώσει την παραγωγικότητα των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
23	...θα δημιουργήσει διαμάχες μεταξύ των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
24	...θα περιορίσει τον ρόλο των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___: εντελως απιθανο 7 6 5 4 3 2 1

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών ..		
25	...θα βοηθήσει τους δασκάλους να επικοινωνήσουν με συναδέλφους άλλων σχολείων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
26	...θα "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
27	...θα δημιουργήσει άγχος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
28	...θα βελτιώσει την επικοινωνία ανάμεσα στους δασκάλους και τους μαθητές τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
29	...θα δημιουργήσει προβλήματα στο υπάρχον αναλυτικό πρόγραμμα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
30	...θα δημιουργήσει προβλήματα στο ωρολόγιο πρόγραμμα του σχολείου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
31	...θα υποστηρίξει την επικοινωνία του σχολείου μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
32	...θα βοηθήσει στην καλύτερη οργάνωση του σχολείου μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
33	...θα βοηθήσει να συνεργαστεί όλο το προσωπικό του σχολείου μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
34	...θα βοηθήσει το σχολείο μου να εφαρμόσει άλλες καινοτομίες.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
35	...θα μου προσδώσει μεγαλύτερο κύρος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
36	...θα μου αυξήσει το άγχος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες αξιολογούν τα ανωτέρω πλεονεκτήματα και μειονεκτήματα της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1	Ο εμπλουτισμός των γνώσεων των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
2	Το να βοηθήσω τους αδύνατους μαθητές να βελτιωθούν είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
3	Το να βοηθήσω τους μαθητές να μαθαίνουν πιο εύκολα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
4	Το να γίνει το μάθημα πιο ευχάριστο για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
5	Το να αυξηθεί το ενδιαφέρον των μαθητών για μάθηση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
6	Το να ενθαρρύνω τη δημιουργικότητα των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
7	Το να βελτιώσω τη συνολική ποιότητα της εκπαίδευσης των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
8	Το χάσιμο του χρόνου για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
9	Το να βοηθήσω τους μαθητές στη μεταξύ τους συνεργασία είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
10	Το να βοηθήσω τους μαθητές να βρουν πιο εύκολα δουλειά στο μέλλον είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
11	Η βελτίωση των γνώσεων των δασκάλων στους υπολογιστές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

12	Το να έχουν οι δάσκαλοι μεγαλύτερη πρόσβαση στους υπολογιστές για προσωπική και επαγγελματική χρήση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
13	Το να γίνουν τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
14	Το να είναι τα μαθήματα πιο διασκεδαστικά για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
15	Το να είναι τα μαθήματα περισσότερο ποικίλα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
16	Το να γίνει η προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
17	Το να οργανώσουν καλύτερα τα μαθήματα οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
18	Το να γίνει η προετοιμασία των μαθηματων περισσότερο χρονοβόρα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ : εξαιρετικά κακό 7 6 5 4 3 2 1
19	Το να περιοριστεί το περιεχόμενο διδασκαλίας των μαθημάτων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
20	Το να είναι ο έλεγχος της τάξης πιο δύσκολος για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
21	Το να έχουν περισσότερο κύρος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
22	Το να βελτιώσουν οι δάσκαλοι την παραγωγικότητά τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
23	Το να έχουν διαμάχες οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
24	Ο περιορισμος του ρόλου των δασκάλων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
25	Η επικοινωνία των δασκάλων με συναδέλφους άλλων σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
26	Το να "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
27	Το να εχουν άγχος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
28	Το να βελτιωθεί η επικοινωνία ανάμεσα στους δασκάλους και στους μαθητές τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
29	Η δημιουργία προβλημάτων στο υπάρχον αναλυτικό πρόγραμμα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
30	Η δημιουργία προβλημάτων στο ωρολόγιο πρόγραμμα του σχολείου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
31	Το να υποστηριχθεί η επικοινωνία του σχολείου μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
32	Το να βοηθηθεί η καλύτερη οργάνωση του σχολείου μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
33	Το να βοηθηθεί η συνεργασία του προσωπικού του σχολείου μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
34	Το να βοηθηθεί το σχολείο μου να εφαρμόσει άλλες καινοτομίες είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
35	Το να έχω μεγαλύτερο κύρος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
36	Το να αυξηθεί το άγχος μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πιθανά πρόσωπα που μπορεί να επιδοκιμάσουν ή να αποδοκιμάσουν την πρόθεσή σας για υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το

μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Ο σχολικός σύμβουλος πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

2. Ο προϊστάμενός του γραφείου μου πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριων μηνών.

3. Ο σύλλογος γονέων και κηδεμόνων πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

4. Οι μαθητές του σχολείου μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

5. Οι διευθυντές των άλλων σχολείων πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

6. Οι δάσκαλοι του σχολείου μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

7. Το Υπουργείο Παιδείας πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

8. Τα πανεπιστήμια πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

9. Οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

10. Η τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

11. Η Διδασκαλική Ομοσπονδία Ελλάδος πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

12. Το Παιδαγωγικό Ινστιτούτο πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

Μιλώντας γενικά, πόσο θέλετε να κάνετε αυτό που...		
1	...ο σχολικός σας σύμβουλος πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
2	...ο προϊστάμενος του γραφείου σας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
3	...ο σύλλογος γονέων και κηδεμόνων πιστεύει ότι πρέπει να κάνετε:	καθολου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
4	...οι μαθητές του σχολείου σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
5	...οι διευθυντές αλλων σχολείων πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
6	...οι δάσκαλοι πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
7	...το Υπουργείο Παιδείας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
8	...τα πανεπιστήμια πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
9	...οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ παρα πολύ 1 2 3 4 5 6 7
10	...η Τοπική Αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ παρα πολύ 1 2 3 4 5 6 7
11	...η Διδασκαλική Ομοσπονδία Ελλάδας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
12	...το Παιδαγωγικό Ινστιτούτο πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν στην υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει την απόλυτη διαφωνία ενώ ο αριθμός 7 δηλώνει την απόλυτη συμφωνία. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προσδοκώ ότι επαρκής αριθμός υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) θα υπάρχει στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

2. Προσδοκώ ότι θα υπάρχει στο σχολείο μου αρκετό εκπαιδευτικό λογισμικό για εκπαιδευτικούς σκοπούς κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

3. Προσδοκώ ότι τεχνική βοήθεια για την λειτουργία και διατήρηση των υπολογιστών θα υπάρχει στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

4. Προσδοκώ ότι θα υπάρχει στο σχολείο μου επαρκής οικονομική στήριξη για τους δασκάλους και για μένα κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

5. Προσδοκώ ότι θα υπάρχει κατάλληλο εργαστήριο υπολογιστών στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

6. Προσδοκώ ότι θα υπάρχει μικρός αριθμός μαθητών ανά τάξη κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

7. Προσδοκώ ότι θα προγραμματιστεί στο σχολείο μου αρκετός χρόνος για την χρήση υπολογιστών ανά τάξη κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

8. Προσδοκώ ότι η χρήση των υπολογιστών θα ενσωματωθεί στο ισχύον Αναλυτικό Πρόγραμμα στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

9. Προσδοκώ ότι οι δάσκαλοι θα έχουν αρκετό χρόνο για να αναπτύξουν τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

10. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τους δασκάλους κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

11. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τον προϊστάμενο γραφείου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

12. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το σχολικό σύμβουλο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

13. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από διευθυντές άλλων σχολείων κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

14. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από τον σύλλογο γονέων και κηδεμόνων κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

15. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το Υπουργείο Παιδείας κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

16. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από το Παιδαγωγικό Ινστιτούτο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

17. Προσδοκώ ότι θα υπάρχει υποστήριξη στο σχολείο μου από την τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

18. Προσδοκώ ότι οι μαθητές θα θέλουν να χρησιμοποιήσουν υπολογιστές στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

19. Προσδοκώ ότι θα υπάρχει συνεχής σύνδεση στο διαδίκτυο στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

20. Προσδοκώ ότι θα υπάρχουν στο σχολείο μου επαρκείς δυνατότητες επιμόρφωσης των εκπαιδευτικών στην παιδαγωγική χρήση των υπολογιστών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν το να υποστηρίξετε την εισαγωγή και εφαρμογή των ΤΠΕ στο σχολείο σας κατά τη διάρκεια των επόμενων τριών μηνών. Παρακαλώ σε κάθε πρόταση να επιλέξετε έναν αριθμό που να αντιπροσωπεύει την απάντησή σας.

1. Η ύπαρξη επαρκούς αριθμού υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

2. Η ύπαρξη αρκετού εκπαιδευτικού λογισμικού για εκπαιδευτικούς σκοπούς στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

3. Το να υπάρχει τεχνική βοήθεια για την λειτουργία και συντήρηση των υπολογιστών στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

4. Επαρκής οικονομική στήριξη για τους δασκάλους και για μένα στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

5. Ένα κατάλληλο εργαστήριο πληροφορικής στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

6. Ο μικρός αριθμός μαθητών ανά τάξη κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

7. Το να προγραμματιστεί αρκετός χρόνος για χρήση υπολογιστών ανά τάξη στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

8. Η ενσωμάτωση της χρήσης των υπολογιστών στο ισχύον Αναλυτικό Πρόγραμμα στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

9. Η ύπαρξη αρκετού χρόνου για να αναπτύξουν οι δάσκαλοι τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

10. Η υποστήριξη των δασκάλων στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

11. Η υποστήριξη του προϊστάμενου του γραφείου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσοτερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

12. Η υποστήριξη του σχολικού συμβούλου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

13. Η υποστήριξη των διευθυντών άλλων σχολείων στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

14. Η υποστήριξη του συλλόγου γονέων και κηδεμόνων στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσοτερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

15. Η υποστήριξη του Υπουργείου Παιδείας στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

16. Η υποστήριξη του Παιδαγωγικού Ινστιτούτου στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

17. Η υποστήριξη της τοπικής αυτοδιοίκησης (Δήμος, Νομαρχία) στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

18. Το να θέλουν οι μαθητές μου να χρησιμοποιήσουν υπολογιστές στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

19. Η ύπαρξη συνεχούς σύνδεσης στο διαδίκτυο στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

20. Το να υπάρχουν επαρκείς δυνατότητες επιμόρφωσης στην παιδαγωγική χρήση των υπολογιστών για τους δασκάλους στο σχολείο μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

Μέρος 3ο

Στη συνέχεια του ερωτηματολογίου υπάρχουν κάποιες στάσεις απέναντι στους υπολογιστές. Παρακαλώ, κυκλώστε ένα αριθμό σε κάθε πρόταση, δηλώνοντας την απάντηση που σας αντιπροσωπεύει.

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
1	Έχω κουραστεί να χρησιμοποιώ υπολογιστή.	1	2	3	4	5
2	Οι υπολογιστές δεν είναι συναρπαστικοί.	1	2	3	4	5
3	Αν μου δινόταν η ευκαιρία, θα ήθελα να μάθω για τους υπολογιστές και τη χρήση τους.	1	2	3	4	5
4	Νομίζω ότι οι υπολογιστές είναι πολύ εύκολοι στη χρήση τους.	1	2	3	4	5
5	Οι υπολογιστές θα μπορούσαν να βοηθήσουν στην ενισχυτική διδασκαλία.	1	2	3	4	5
6	Θα εργαστώ με υπολογιστή όσο το δυνατόν λιγότερο.	1	2	3	4	5
7	Τα επιμορφωτικά προγράμματα για τους υπολογιστές στο χώρο εργασίας πρέπει να γίνουν υποχρεωτικά.	1	2	3	4	5
8	Η χρήση υπολογιστή στην τάξη οδηγεί σε αυξημένη απόδοση των μαθητών.	1	2	3	4	5
9	Συγκεντρώνομαι στον υπολογιστή, όταν τον χρησιμοποιώ.	1	2	3	4	5
10	Νομίζω ότι η εργασία με υπολογιστές θα ήταν ευχάριστη και ενδιαφέρουσα.	1	2	3	4	5
11	Θα ήθελα να συμμετάσχω σε μάθημα πληροφορικής για να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
12	Θα δούλευα πιο εντατικά αν είχα τη δυνατότητα να χρησιμοποιώ υπολογιστές συχνότερα.	1	2	3	4	5
13	Μερικές φορές φοβάμαι όταν πρέπει να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
14	Η πρόκληση να λύνω προβλήματα με υπολογιστή δεν με ελκύει.	1	2	3	4	5
15	Οι υπολογιστές βλάπτουν τις σχέσεις μεταξύ των ανθρώπων.	1	2	3	4	5
16	Νιώθω άνετα όταν εργάζομαι με υπολογιστή.	1	2	3	4	5
17	Είμαι βέβαιος/-η ότι θα μπορούσα να εργαστώ με υπολογιστές.	1	2	3	4	5
18	Η εργασία με υπολογιστές στην τάξη διαστρεβλώνει το κοινωνικό κλίμα.	1	2	3	4	5
19	Αν προέκυπτε πρόβλημα με κάποιο πρόγραμμα του υπολογιστή που δεν μπορώ να λύσω άμεσα, θα επέμεινα σε αυτό μέχρι να βρω την λύση.	1	2	3	4	5
20	Μου αρέσει να ασχολούμαι με έναν υπολογιστή.	1	2	3	4	5
21	Οι υπολογιστές με κάνουν να νιώθω αμήχανος/-η και μπερδεμένος/-η.	1	2	3	4	5
22	Είμαι βέβαιος ότι θα μπορούσα να μάθω μια γλώσσα προγραμματισμού (για τον υπολογιστή).	1	2	3	4	5
23	Οι μαθητές προσέχουν περισσότερο όταν στην τάξη χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
24	Ξέρω ότι οι υπολογιστές μου δίνουν την ευκαιρία να μάθω νέα πράγματα.	1	2	3	4	5
25	Η χρήση των υπολογιστών είναι δύσκολη.	1	2	3	4	5
26	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) αυξάνει τα κίνητρα στους μαθητές για το μάθημα.	1	2	3	4	5
27	Θα χρησιμοποιήσω τους υπολογιστές με πολλούς τρόπους στη ζωή μου.	1	2	3	4	5
28	Δεν μπορώ να σκεφτώ κανένα τρόπο που θα χρησιμοποιήσω υπολογιστή στην καριέρα μου.	1	2	3	4	5
29	Πρέπει να είσαι "μυαλό" για να εργάζεσαι με υπολογιστές.	1	2	3	4	5
30	Η εκμάθηση των υπολογιστών είναι χάσιμο χρόνου.	1	2	3	4	5
31	Οι υπολογιστές στο σχολείο εξαίρουν τη δημιουργικότητα των μαθητών.	1	2	3	4	5
32	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
33	Προσπαθώ να ενημερώνομαι για τις τεχνολογικές εξελίξεις.	1	2	3	4	5
34	Δεν μου αρέσει να συζητώ με άλλους για υπολογιστές.	1	2	3	4	5

	1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*	*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
35	Οι υπολογιστές συντελούν στην πιο αποδοτική διδασκαλία.	1	2	3	4	5
36	Οι υπολογιστές δεν με φοβίζουν καθόλου.	1	2	3	4	5
37	Η χρήση ενός υπολογιστή με εμποδίζει να είμαι δημιουργικός/-ή.	1	2	3	4	5
38	Οι επιδόσεις των μαθητών μπορούν να αυξηθούν όταν στη διδασκαλία χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
39	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές ως ενισχυτικά μέσα διδασκαλίας.	1	2	3	4	5
40	Θα μου άρεσε να εργάζομαι με υπολογιστές.	1	2	3	4	5
41	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μάθημα πιο ενδιαφέρον.	1	2	3	4	5
42	Δεν με πειράζει να μάθω για τους υπολογιστές.	1	2	3	4	5
43	Η εργασία με υπολογιστή με κάνει νευρικό/-ή.	1	2	3	4	5
44	Οι υπολογιστές είναι πολύτιμα εργαλεία για τη βελτίωση της ποιότητας της εκπαίδευσης των μαθητών.	1	2	3	4	5
45	Πιθανώς δεν θα μάθω ποτέ να χρησιμοποιώ υπολογιστές.	1	2	3	4	5
46	Οι κοινωνικές επαφές επηρεάζονται αρνητικά από τη χρήση των υπολογιστών.	1	2	3	4	5
47	Οι υπολογιστές μπορούν να χρησιμοποιηθούν με επιτυχία σε μαθήματα που απαιτούν δημιουργικές δραστηριότητες.	1	2	3	4	5
48	Είναι ενδιαφέρον να μαθαίνει κανείς για υπολογιστές.	1	2	3	4	5
49	Διστάζω να χρησιμοποιήσω υπολογιστές από φόβο ότι θα κάνω λάθη που δεν μπορώ να διορθώσω.	1	2	3	4	5
50	Τα άτομα που εργάζονται με υπολογιστές κάθονται μπροστά σε μια οθόνη όλη την ημέρα.	1	2	3	4	5
51	Έχω πολλή αυτοπεποίθηση όσον αφορά την εργασία με υπολογιστές.	1	2	3	4	5
52	Οι υπολογιστές θα βοηθούσαν τους μαθητές να συνεργάζονται μεταξύ τους.	1	2	3	4	5
53	Πιστεύω ότι είναι πολύ σημαντικό για μένα να μάθω να χειρίζομαι έναν υπολογιστή.	1	2	3	4	5
54	Η χρηση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μαθητή να νιώθει ότι συμμετέχει περισσότερο.	1	2	3	4	5
55	Η πρόκληση της μάθησης με υπολογιστές με συναρπάζει.	1	2	3	4	5
56	Δεν θα δεχόμουν ποτέ μια δουλειά, όπου θα έπρεπε να εργάζομαι με υπολογιστές.	1	2	3	4	5
57	Απογοητεύομαι όταν σκέπτομαι ότι προσπαθώ να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
58	Οι υπολογιστές μπορούν να είναι χρήσιμο βοήθημα διδασκαλίας σε όλα σχεδόν μαθήματα.	1	2	3	4	5
59	Δεν νομίζω ότι θα έκανα υψηλού επιπέδου εργασίες με τους υπολογιστές.	1	2	3	4	5
60	Θα ήθελα να περνάω περισσότερη ώρα χρησιμοποιώντας υπολογιστές.	1	2	3	4	5
61	Νιώθω άνετα όταν έχω γύρω μου υπολογιστές.	1	2	3	4	5
62	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) βοηθάει το μαθητή να μάθει περισσότερα.	1	2	3	4	5

Σας ευχαριστώ πολύ για την συνεργασία σας
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APPENDIX C1: DISTRICT OFFICER QUESTIONNAIRE

CONFIDENTIAL

CODE

District Officer Questionnaire

The main objective of this questionnaire is to know the current state of ICT in Greek primary schools. The questionnaire is divided into three parts. In Part 1 you are asked to provide some basic information about yourself and your experience of computers. You are asked to provide general information about the kind of support that you provide to schools in your district, which use computers. Part 2 and 3 aims to elicit more detailed information by asking you to indicate the extent to which you agree or disagree with a number of statements provided.

Part 1

1. Personal Information

1.1. Name_____

1.2. Sex: Male ☐ Female ☐

1.3. Age: 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ over 55 ☐

1.4 Name of the district: _____

1.5 Contact address: _____

1.6 Contact fax / telephone number: _____

1.7 E-mail address: _____

1.8 Degree (s) and specialisation (s):

Pedagogical Academy ☐ Faculty of Primary Education ☐

Eksomiosi ☐ Maraslion Didaskalion of Primary Education ☐

Other degree ☐ Please specify:_____

Master ☐ Please specify :_____

PhD ☐ Please specify: _____ Other ☐ Please specify: _____

1.9 Years of teaching experience: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ over 25 ☐

1.10 How long have you been a district officer at this district? _____

2 General Information about your district

2.1 Please indicate the number and the characteristics of schools of your district.

		Urban	Semi-urban	Rural	Other (please specify):
State	Number of schools				
Private					
Experimental					
Schools with hour extended programme					
Other (please specify):					

2.2 How many teaching staff is there in the schools of your district? _____

2.3 How many students are enrolled in the schools of your district? _____

2.4 Please indicate your district schools overall use of computers and the length of time they have been using each mode.

School computer use		Period of time						
		Less than 1 year	1-2 years	2-4 years	4-6 years	6-8 years	8-10 years	More than 10 years
School administration	Number of schools							
Teaching pupils								
Individual teacher's personal use								

2.5 Is your office connected to the Internet? YES ☐ NO ☐

2.6 If YES, has your office created its own web site? YES ☐ NO ☐

3. *Your computer experience and knowledge*

3.1 Please tick one box on each line.

	none	a little	average	quite a lot	a lot
How much do you know about computers?	1	2	3	4	5
	no good	**weak**	**average**	**quite good**	**very good**
How good are you at using programs?	1	2	3	4	5

3.2 Please indicate your knowledge and expertise in computers. Please indicate by drawing a circle round the appropriate number.

I Know ...	none	a little	quite a lot	a lot
1. The difference between mainframe computers and personal computers.	1	2	3	4
2. The difference between the operating system and an application package.	1	2	3	4
3. The trends in hardware development in the past 30 years.	1	2	3	4
4. Criteria to judge the quality of a printer.	1	2	3	4
5. What "file extensions" are.	1	2	3	4
6. What a "loop" means in programming.	1	2	3	4
7. What a "relational database" is like.	1	2	3	4
8. What a "bit" is defined as.	1	2	3	4
9. The difference between "RAM" and "ROM".	1	2	3	4
10. The difference between a word processor and a desktop publishing programme.	1	2	3	4

I can ...	not at all	a little	well	very well
1. Load software.	1	2	3	4
2. Format disks.	1	2	3	4
3. Check virus.	1	2	3	4
4. Manage files.	1	2	3	4
5. Connect computer to external devices.	1	2	3	4
6. Use help-facilities.	1	2	3	4
7. Create sub-directories.	1	2	3	4
8. Send an email.	1	2	3	4
9. Search the World Wide Web.	1	2	3	4
10. Download files from email or World Wide Web.	1	2	3	4

4. Personal use of computers

4.1 Do you have access to a computer for personal use outside of your workplace?

YES ☐ NO ☐ If NO, please move on to section 5.

4.2 Who owns the computer you use outside of your workplace (e.g. you, your husband/wife/partner)? _____

4.3 Please indicate which type of computer you use:

Desktop PC		Laptop		Desktop Apple Mac	

4.4 Please indicate **how often you use** computers for personal purpose outside of your workplace. Please answer each of the following sentences by circling the appropriate response.

	Never	about an hour each month	about an hour each week	several hours a week	more than an hour a day
Word processing	1	2	3	4	5
Spreadsheets	1	2	3	4	5
Databases	1	2	3	4	5
Desk-top publishing	1	2	3	4	5
Art/graphics software	1	2	3	4	5
CD-ROM software	1	2	3	4	5
E-mail	1	2	3	4	5
World Wide Web	1	2	3	4	5
Games	1	2	3	4	5
Other (please specify):	1	2	3	4	5

4.5 Please also indicate **how long** you use computers for personal purpose outside of your workplace.

	Period of time (e.g. 3 years and 2 months)		Period of time (e.g. 3 years and 2 months)
Word processing		CD-ROM software	
Spreadsheets		E-mail	
Databases		World Wide Web	
Desk-top publishing		Games	
Art/graphics software		Other (please specify):	

4.6 Do you have access to the Internet outside of your workplace? YES ☐ NO ☐ If NO, please move on to section 5.

4.7 Do you have an e-mail address? YES ☐ NO ☐

If NO, please go to section 5. If YES, how often do you check your e-mail?

Never	Once/twice a month	Once a week	Every other Day	Every day

5 Staff development training

5.1 Please, indicate the time period (in hours) of each form of training in ICT education **you** have received in your career. If you do not use computer or you have not received any training please move on to section 6.

Location	Hours of courses received				
	Initial awareness course	Short special course (e.g. using databases)	Advanced course	Working conference	Longer award bearing course
In school					
In university					
LEA Centre					
On-line					
Private institute					
Other (please specify)					

6. Using computers for administration

6.1 Do you use computers for administrative purposes?

YES ☐ NO ☐ If you answered NO please move on to section 7.

6.2 Please, indicate **how often** you use computers for administrative purposes.

Never	Once a month	Twice a month	Twice a week	Every day

6.3 Please, indicate **how long** you use computers for administrative purposes (e.g. 3 years and 2 months): _____

7. Computer support

7.1 Please indicate the kind of support your district provides to schools for their development in the use of computers in education. Please choose a number for each item (1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot).

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot	
Hardware	
Support for acquisition of hardware for school management and administration.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for school management and administration.	
Support for acquisition of hardware for teaching purposes.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for teaching purposes.	

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot	
Software	
Support for acquisition of new software for teaching purposes.	
Support for acquisition of new software for management and administration.	
Organization/administration	
Organization and management (including timetabling) of computer resources.	
Technical assistance to teachers and head teachers.	
Provision of training opportunities for teachers.	
Provision of training opportunities for head teachers.	
The use of computer facilities outside school hours by teachers.	
The use of computer facilities outside school hours by students.	
The use of computer facilities outside school hours for staff development.	
Establishment of computer laboratories.	
Support for the connection to the Internet.	
Support for the creation of a web site.	
Curriculum applications	
How teachers should use computers in their teaching.	
How teachers should use computers in specific subjects.	
How teachers should organize pupils in the classroom.	
How teachers should incorporate use of the Internet into their teaching.	
Other (please specify):	

7.2 Has your district been running projects to help schools using computers funded by the district, Ministry of Education, Universities, European Union, parents, or other institution ?

YES ☐ NO ☐

If NO, please go to question 7.4. If YES, please indicate the project (s) your district has been involved in during the last 5 years.

Name of project(s)	Purpose of project(s)	Funded by	Duration	Ages of pupils	Number of schools

7.3 Do you have a policy to introduce computers in schools, which are not using computers?

YES ☐ NO ☐

If YES, please specify. If NO, please specify the reasons why not:_____

_____

_____

7.4 Have you organized training programmes and seminars about computers in education for teachers in the schools in your district?

YES ☐ NO ☐

If YES, describe in brief some of these programmes and their aim: _____

_____

_____

_____

7.5 Have you encouraged teachers in your area to participate in training courses, seminars about computers in education with your help and support?

YES ☐ NO ☐ If YES, please specify: _____

_____

7.6 During your visits to schools and your meetings with teachers, have they asked for your aid and support about computers in their classroom?

YES ☐ NO ☐

If YES, what kind are these problems and what steps would you take to help them? _____

_____

_____

Part 2

Please explain in a few words what Information Communication Technology (ICT) means to you. _____

_____

_____

_____

In the questionnaire you are about to fill out, we ask you questions which make use of rating scales with seven options. You are to check mark (√) the option that best describes your opinion. More specifically, in this questionnaire we are mainly concerned with district officers' views toward supporting the uptake of Information Communication Technology (ICT) in their schools.

1. I intend to support the uptake of ICT in schools of my district during the next three months.

extremely unlikely	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	extremely likely

2. I will try to support the uptake of ICT in schools of my district during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

3. I plan to support the uptake of ICT in schools of my district during the next three months.

strongly disagree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly agree

4. For me to support the uptake of ICT in schools of my district during the next three months is

harmful	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	beneficial
pleasant	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unpleasant
good	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	bad
worthless	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	valuable
enjoyable	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unenjoyable

5. Most people who are important to me think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

6. It is expected of me that I support the uptake of ICT in schools of my district during the next three months.

extremely likely	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	extremely unlikely

7. The people in my life whose opinions I value would

approve	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	disapprove

of my supporting the uptake of ICT in schools of my district during the next three months.

8. Most people who are important to me support the uptake of ICT in schools.

completely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	completely false

9. The people in my life whose opinions I value

support	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	do not support

the uptake of ICT in schools

10. For me to support the uptake of ICT in schools of my district during the next three months would be

impossible	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	possible

11. If I wanted to I could support the uptake of ICT in schools of my district during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

12. How much control do you believe you have over supporting the uptake of ICT in schools of my district during the next three months?

no control	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	complete control

13. It is mostly up to me whether or not I support the uptake of ICT in schools of my district during the next three months.

strongly agree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly disagree

Behavioural belief strength

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
1	*...enrich pupils' knowledge.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
2	*... help the weak pupils improve.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
3	*...help pupils learn more easily.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
4	*...make the lessons more fun for the pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
5	*...increase pupils' interest in learning.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
6	*...stimulate creativity in pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
7	*...significantly improve the overall quality of pupils' education.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
8	*...be a waste of time for pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
9	*...help pupils work with one another.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
10	*...help pupils to find a job easier in future.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
11	*...help teachers to improve their ICT expertise.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
12	*...allow teachers greater access to a computer for personal and professional use.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
13	*...make lessons more interesting for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
14	*...make the lessons more enjoyable for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
15	*...make lessons more diverse.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
16	*...make preparation for lessons easier for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
17	*...help teachers organise better their lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
18	*...make preparation for lessons more time consuming for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
19	*...restrict the content of lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
20	*...make it more difficult for teachers to control the class.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
21	*...give teachers more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
22	*...improve teachers' productivity.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
23	*...cause conflicts among teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
24	*...restrict teachers' role.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
25	*...help teachers communicate with colleagues in other schools.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
26	*...save teachers more time and work.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
27	*...cause teachers stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
28	*...improve communication among the pupils and teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
29	*...create problems in the current curriculum.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
30	*...create problems in the school timetable.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
31	*...support the communication of my schools with other schools in Greece and abroad.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
32	*...help schools' organisation better.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
33	*...help the schools' personnel to cooperate.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
34	*...help my schools to implement other innovations.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
35	*...give me more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
36	*...cause me stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Outcome evaluation

1	*Enriching pupils' knowledge is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
2	*Helping the weak pupils improve is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
3	*Helping pupils' learning more easily is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
4	*Making the lessons more fun for the pupils is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
5	*Increasing pupils' interest in learning is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
6	*Stimulating creativity in pupils is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
7	*Improving the overall quality of pupils' education is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
8	*Waste of time for pupils is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
9	*Helping pupils work with one another is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
10	*Helping pupils find a job easier in future is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
11	*Improving teachers ICT expertise is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
12	*Allowing teachers greater access to a computer for personal and professional use is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
13	*Making lessons more interesting for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
14	*Making lessons more enjoyable for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
15	*Making lessons more diverse is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
16	*Making preparation for lessons easier for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
17	*Organising lessons better for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
18	*Making preparation for lessons more time - consuming for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
19	*Restricting the content of lessons is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
20	*Making the control of the class more difficult for teachers is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7
21	*Giving teachers more prestige is:*	extremely bad :___: ___ :___:___:___:___:___ extremely good 1 2 3 4 5 6 7

22	*Improving teachers' productivity is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
23	*Having teachers conflicting with their colleagues is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
24	*Restricting teachers' role is:*	extremely bad :___: ___ :___ :___ :___ :___ : extremely good 1 2 3 4 5 6 7
25	*Helping teachers communicate with colleagues in other schools is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
26	*Saving teachers more time and work is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
27	*Causing teachers stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
28	*Improving communication among pupils and teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
29	*Creating problems in the current curriculum is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
30	*Creating problems in the schools timetable is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
31	*Supporting the communication of my schools with other schools in Greece and abroad is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
32	*Helping schools' better organisation is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
33	*Helping the schools' personnel to cooperate is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
34	*Helping schools to implement other innovations is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
35	*Having more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
36	*Having stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

Normative belief strength

1. The school counsellor of my district thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

2. The district officers' of other districts think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

3. Parents' association of my district thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

4. Pupils of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

5. Head teachers of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

6. Teachers of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

7. The Ministry of Education thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

8. Universities think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

9. Private computer companies think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

10. Local authorities (Municipality, Prefecture) think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

11. Greek primary teachers' federation thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

12. The Pedagogical Institute thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

Motivation to comply

Generally speaking, how much do you want to do what...		
1	*...the school counsellor of your district thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
2	*...the district officers of other districts think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
3	*...parents' association of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

Generally speaking, how much do you want to do what...		
4	*... pupils of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
5	*...the head teachers of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
6	*...teachers of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
7	*...the Ministry of Education thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
8	*...universities think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
9	*...private computer companies think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
10	*...local authorities (Municipality, Prefecture) think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
11	*...Greek primary teachers' federation thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
12	*...the Pedagogical Institute thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

Control belief strength

1. I expect that sufficient number of computers and peripherals (e.g. printer) will be available at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

2. I expect that enough software for teaching purposes will be available at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

3. I expect that technical assistance for operating and maintaining computers will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

4. I expect that adequate financial support for teachers and me will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

5. I expect that an appropriate computer room will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

6. I expect that there will be a small number of pupils in each class at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

7. I expect that enough computer time for each class will be scheduled at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

8. I expect that computers' use will be integrated in the existing prescribed class curriculum at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

9. I expect that teachers will have enough time to develop lessons in which computers are used at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

10 I expect that support will be provided at schools of my district by teachers of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

11. I expect that support will be provided at schools of my district by the district officers of other districts during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

12. I expect that support will be provided at schools of my district by the school counsellors during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

13. I expect that support will be provided at schools of my district by the head teachers of other schools during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

14. I expect that support will be provided at schools of my district by the parents' association during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

15. I expect that support will be provided by the Ministry of Education at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

16. I expect that support will be provided by the Pedagogical Institute at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

17. I expect that support will be provided by the local authorities (Municipality, Prefecture) at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

18. I expect that pupils will want to use ICT at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

19. I expect that enough connections to the Internet will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

20. I expect that sufficient training opportunities on the pedagogical use of computers for teachers will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

Control belief power

1. The availability of sufficient number of computer and peripherals (e.g. printer) at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

2. The availability of enough software for teaching purposes at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

3. Being provided with technical assistance for operating and maintaining computers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

4. Adequate financial support for the teachers and for me at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT in my school.

5. An appropriate computer room at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

6. The small number of pupils in each class at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

7. The scheduling of enough computer time for each class at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

8. The integration of computer use in the existing prescribed class curriculum at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

9. Enough time to develop lessons in which computers are used at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

10. The support of the teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

11. The support of the district officers of other districts at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

12. The support of the school counsellors at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

13. The support of the head teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

14. The support of the parents' association at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

15. The support of the Ministry of Education at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

16. The support of the Pedagogical Institute at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

17. The support of the local authorities (Municipality, Prefecture) at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

18. For pupils to want to use ICT at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

19. The provision of enough connections to the Internet at schools of my district of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

20. Being provided with sufficient training opportunities on the pedagogical use of computers for teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

Part 3

Attitudes towards computers

Please circle the appropriate number to indicate your agreement or disagreement with each statement.

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
1	I am tired of using a computer.	1	2	3	4	5
2	Computers are not exciting.	1	2	3	4	5
3	If given the opportunity, I would like to learn about and use computers.	1	2	3	4	5
4	I think that computers are very easy to use.	1	2	3	4	5
5	Computers could enhance remedial instruction.	1	2	3	4	5
6	I will do as little work with computers as possible.	1	2	3	4	5
7	In-service training courses about computers should be made compulsory.	1	2	3	4	5
8	Using computers in class leads to more productivity among students.	1	2	3	4	5
9	I concentrate on a computer when I use one.	1	2	3	4	5
10	I think working with computers would be enjoyable and stimulating.	1	2	3	4	5
11	I would like to take part in a computer course to learn more about computers.	1	2	3	4	5
12	I would work harder if I could use computers more often.	1	2	3	4	5
13	I sometimes feel intimidated when I have to use a computer.	1	2	3	4	5
14	The challenge of solving problems with computers does not appeal to me.	1	2	3	4	5
15	Computers harm relations between people.	1	2	3	4	5
16	I feel comfortable working with a computer.	1	2	3	4	5
17	I am sure I could do work with computers.	1	2	3	4	5
18	Working with computers in class distorts the social climate.	1	2	3	4	5
19	When there is a problem with a computer run that I can't immediately solve. I would stick with it until I have the answer.	1	2	3	4	5
20	I enjoy doing things on a computer.	1	2	3	4	5
21	Computers make me feel uneasy and confused.	1	2	3	4	5
22	I am sure I could learn a computer language.	1	2	3	4	5
23	Students are more attentive when computers are used in class.	1	2	3	4	5
24	I know that computers give me opportunities to learn new things.	1	2	3	4	5
25	Computers are difficult to use.	1	2	3	4	5
26	The use of e-mail increases motivation for the course.	1	2	3	4	5
27	I will use computers many ways in my life.	1	2	3	4	5
28	I can't think of any way that I will use computers in my career.	1	2	3	4	5
29	Computers have become too dominant over us.	1	2	3	4	5
30	Learning about computers is a waste of time.	1	2	3	4	5
31	Computers in school enhance students' creativity.	1	2	3	4	5
32	I would like to learn more about computers.	1	2	3	4	5
33	I try to keep myself informed about technological changes.	1	2	3	4	5
34	I do not enjoy talking with others about computers.	1	2	3	4	5
35	Computers help to teach more effectively.	1	2	3	4	5
36	Computers do not scare me at all.	1	2	3	4	5
37	Using a computer prevents me from being creative.	1	2	3	4	5
38	The achievement of students can be increased when using computers for teaching.	1	2	3	4	5

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
39	I would like to learn more about computer as teaching aids.	1	2	3	4	5
40	I would like working with computers.	1	2	3	4	5
41	The use of e-mail makes the course more interesting.	1	2	3	4	5
42	I don't mind learning about computers.	1	2	3	4	5
43	Working with computer makes me nervous.	1	2	3	4	5
44	Computers are valuable tools for improving the quality of a child's education.	1	2	3	4	5
45	I will probably never learn to use a computer.	1	2	3	4	5
46	Social contacts are negatively affected by the use of computers.	1	2	3	4	5
47	Computers can be used successfully with courses which demand creative activities.	1	2	3	4	5
48	Learning about computers is interesting.	1	2	3	4	5
49	I hesitate to use a computer for fear of making mistakes I cannot correct.	1	2	3	4	5
50	We will lose control over computers one day.	1	2	3	4	5
51	I have a lot of self - confidence when it comes to working with computers.	1	2	3	4	5
52	Computers would help students work with one another.	1	2	3	4	5
53	I believe that it is very important for me to learn how to use a computer.	1	2	3	4	5
54	The use of e-mail makes the student feel more involved.	1	2	3	4	5
55	The challenge of learning about computers is exciting.	1	2	3	4	5
56	Computers reduce humans to number.	1	2	3	4	5
57	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
58	Computers can be a useful instructional aid in almost all subject areas.	1	2	3	4	5
59	I don't think I would do advanced computers work.	1	2	3	4	5
60	I would like to spend more time using a computer.	1	2	3	4	5
61	I feel at ease when I am around computers.	1	2	3	4	5
62	The use of e-mail helps the student to learn more.	1	2	3	4	5

Thank you very much for your cooperation

George J. Koutromanos, PhD student
School of Social Science and Public Policy
Department of Education and Professional Studies
King's College London University of London

APPENDIX C2: DISTRICT OFFICER QUESTIONNAIRE
(Greek version)

ΕΜΠΙΣΤΕΥΤΙΚΟ

ΚΩΔΙΚΟΣ

Ερωτηματολόγιο Προϊσταμένου Γραφείου

Βασικός σκοπός αυτού του ερωτηματολογίου είναι η διερεύνηση της υπάρχουσας κατάστασης των υπολογιστών στα ελληνικά δημοτικά σχολεία. Το ερωτηματολόγιο χωρίζεται σε τρία μέρη. Στο πρώτο μέρος σας ζητείτε να παρουσιάσετε ορισμένες βασικές πληροφορίες για τον εαυτό σας και την εμπειρία σας στους υπολογιστές. Σας ζητείτε επίσης να παραθέσετε γενικές πληροφορίες σχετικά με το είδος της υποστήριξης που παρέχετε στα σχολεία της περιφέρειάς σας που χρησιμοποιούν υπολογιστές. Στο δεύτερο και τρίτο μέρος επιδιώκεται να συλλεχθούν πιο λεπτομερείς πληροφορίες ζητώντας σας να προσδιορίσετε κατά πόσον συμφωνείτε ή διαφωνείτε με έναν αριθμό δηλώσεων που παρατίθενται.

Μέρος 1ο

1. Προσωπικές Πληροφορίες

1.1. Όνομα: _____

1.2. Φύλο: Άνδρας ☐ Γυναίκα ☐

1.3. Ηλικία: 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ πάνω από 55 ☐

1.3 Όνομα περιφέρειας στην οποία είστε προϊστάμενος γραφείου: _____

1.4 Διεύθυνση επικοινωνίας: _____

1.5 Φαξ / Τηλέφωνο επικοινωνίας: _____

1.6 Διεύθυνση ηλεκτρονικού ταχυδρομείου (E-mail): _____

1.7 Πτυχίο(α) και ειδικότητα (ες):

Παιδαγωγική Ακαδημία ☐ Παιδαγωγικό Τμήμα Δ.Ε. ☐

Πτυχίο Εξομοίωσης ☐ Μαράσλειο Διδασκαλείο Δ.Ε. ☐

Άλλο πτυχίο ☐ Παρακαλώ προσδιορίστε: _____

Μεταπτυχιακό (Master) ☐ Παρακαλώ προσδιορίστε: _____

Διδακτορικό (PhD) ☐ Παρακαλώ προσδιορίστε: _____

Άλλο ☐ Παρακαλώ προσδιορίστε: _____

1.8 Έτη διδακτικής εμπειρίας: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ πάνω από 25 ☐

1.9 Πόσο διάστημα είστε προϊστάμενος γραφείου σε αυτή την περιφέρεια: _____

2. Γενικές Πληροφορίες

2.1 Παρακαλώ να προσδιορίσετε τον αριθμό και τα χαρακτηριστικά των σχολείων της περιφέρειάς σας (π.χ 10 δημόσια και 2 ιδιωτικά τα οποία είναι σε αστικές περιοχές).

Τύπος σχολείων		**Αστικά**	**Ημιαστικά**	**Επαρχιακά**	**Άλλο (παρακαλώ προσδιορίστε):**
Δημόσια	**Αριθμός σχολείων**				
Ιδιωτικά					
Πειραματικά					
Ολοήμερα σχολεία					
Άλλο (παρακαλώ προσδιορίστε):					

2.2 Πόσοι εκπαιδευτικοί υπηρετούν στα σχολεία της περιφέρειάς σας; _____

2.3 Πόσοι μαθητές είναι εγγεγραμμένοι στα σχολεία της περιφέρειάς σας: _____

2.4 Παρακαλώ να προσδιορίσετε το είδος χρήσης των υπολογιστών στα **δημόσια** σχολεία της περιφέρειάς σας και τη χρονική διάρκεια που γίνεται χρήση οποιασδήποτε μορφής (π.χ υπάρχουν 2 σχολεία που χρησιμοποιούν υπολογιστές για διδασκαλία μαθητών 1-2 χρόνια και 10 σχολεία που χρησιμοποιούν για διοίκηση σχολείου 4-6 χρόνια).

Χρήση υπολογιστών στα σχολεία για:		**Χρονική περίοδος**						
		Λιγότερο από 1 χρόνο	**1-2 χρόνια**	**2-4 χρόνια**	**4-6 χρόνια**	**6-8 χρόνια**	**8-10 χρόνια**	**Πάνω από 10 χρόνια**
Διοίκηση σχολείου	**Αριθμός σχολείων**							
Διδασκαλία των μαθητών								
Προσωπική χρήση δασκάλου								

2.5 Διαθέτει το γραφείο σας πρόσβαση στο διαδίκτυο (Internet): ΝΑΙ ☐ ΟΧΙ ☐

2.6 Εάν ΝΑΙ έχει δημιουργήσει δική του ιστοσελίδα: ΝΑΙ ☐ ΟΧΙ ☐

3. Η εμπειρία και οι γνώσεις σας στους υπολογιστές

3.1 Παρακαλώ κυκλώστε την απάντηση που σας αντιπροσωπεύει σε κάθε σειρά.

	Καθόλου	Λίγο	Μέτρια	Αρκετά	Πολύ
Ποσο ευρείες γνώσεις έχετε για τους υπολογιστές:	1	2	3	4	5
	Όχι καλοί	Αδύναμοι	Μέτριοι	Αρκετά καλοί	Πολύ καλοί
Ποσο καλοί είστε στη χρήση προγραμμάτων:	1	2	3	4	5

3.2 Παρακαλώ να προσδιορίσετε τις γνώσεις και την πείρα σας στους υπολογιστές. Παρακαλώ προσδιορίστε κυκλώνοντας τον κατάλληλο αριθμό.

Γνωρίζω...	**καθόλου**	**ελάχι-στα**	**αρκετά**	**πολύ**
1. Τη διαφορά μεταξύ των υπολογιστών κεντρικού πλαισίου και των προσωπικών υπολογιστών.	1	2	3	4
2. Τη διαφορά μεταξύ λειτουργικού συστήματος και ενός πακέτου εφαρμογών.	1	2	3	4
3. Τις τάσεις εξέλιξης του τεχνικού εξοπλισμού (hardware) τα τελευταία 30 χρόνια.	1	2	3	4
4. Τα κριτήρια αξιολόγησης της ποιότητας ενός εκτυπωτή.	1	2	3	4
5. Τι είναι οι προεκτάσεις αρχείων (file extensions).	1	2	3	4
6. Τη σημασία της λέξης "loop" στη γλώσσα προγραμματισμού.	1	2	3	4
7. Τι είναι η βάση δεδομένων.	1	2	3	4
8. Πώς ορίζεται ένα "bit".	1	2	3	4
9. Τη διαφορά μεταξύ "RAM" και "ROM".	1	2	3	4
10. Τη διαφορά μεταξύ ενός επεξεργαστή κειμένου και του προγράμματος επεξεργασίας σελίδων (desktop publishing programme).	1	2	3	4

Μπορώ...	καθόλου	ελάχι-στα	καλά	πολύ καλά
1. Να φορτώνω λογισμικό στη μνήμη του υπολογιστή.	1	2	3	4
2. Να κάνω "format" στις δισκέτες.	1	2	3	4
3. Να κάνω έλεγχο για ιούς.	1	2	3	4
4. Να διαχειρίζομαι αρχεία.	1	2	3	4
5. Να συνδέω τον υπολογιστή με εξωτερικές συσκευές.	1	2	3	4
6. Να χρησιμοποιώ την παροχή ευκολιών βοηθείας.	1	2	3	4
7. Να δημιουργώ υποφακέλους.	1	2	3	4
8. Να στέλνω ηλεκτρονικό μήνυμα (e-mail).	1	2	3	4
9. Να αναζητώ πληροφορίες στο διαδίκτυο (Internet).	1	2	3	4
10. Να κατεβάζω αρχεία από ηλεκτρονικά μηνύματα ή από το διαδίκτυο.	1	2	3	4

4. Προσωπική χρήση υπολογιστών (εκτός εργασιακού χώρου)

4.1 Έχετε πρόσβαση σε υπολογιστή για προσωπική χρήση εκτός εργασιακού χώρου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 5.

4.2 Σε ποιον ανήκει ο υπολογιστής που χρησιμοποιείτε εκτός εργασιακού χώρου (π.χ. σε εσάς, στον/στη σύζυγό σας/σύντροφό σας); _____

4.3 Παρακαλώ να προσδιορίσετε το είδος του υπολογιστή που χρησιμοποιείτε:

Desktop PC		Φορητό (Laptop)		Desktop Apple Mac	

4.4 Παρακαλώ να προσδιορίσετε πόσο συχνά χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός εργασιακού χώρου.

	Ποτέ	Περίπου μια ώρα το μήνα	Περίπου μια ώρα την εβδομάδα	Αρκετές ώρες την εβδομάδα	Περισσότερο από μια ώρα την ημέρα
Επεξεργαστής κειμένου	1	2	3	4	5
Λογιστικά φύλλα	1	2	3	4	5
Βάσεις δεδομένων	1	2	3	4	5
Επεξεργασία σελίδων (Desk-top publishing)	1	2	3	4	5
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής	1	2	3	4	5
CD-ROM	1	2	3	4	5
Ηλεκτρονικό ταχυδρομείο (E-mail)	1	2	3	4	5
Διαδίκτυο (Internet)	1	2	3	4	5
Παιχνίδια	1	2	3	4	5
Άλλο (παρακαλώ προσδιορίστε):	1	2	3	4	5

4.5 Παρακαλώ να προσδιορίσετε το χρονικό διάστημα που χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός εργασιακού χώρου.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)		**Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)**
Επεξεργαστής κειμένου		CD-ROM	
Λογιστικά φύλλα		Ηλεκτρονικό ταχυδρομείο (E-mail)	
Βάσεις δεδομένων		Διαδίκτυο (Internet)	
Επεξεργασία σελίδων (Desk-top publishing)		Παιχνίδια	
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής		Άλλο (παρακαλώ προσδιορίστε):	

4.6 Έχετε πρόσβαση στο διαδίκτυο (Internet) εκτός εργασιακού χώρου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 5.

4.7 Διαθέτετε ηλεκτρονική διεύθυνση (E-mail address); ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 5. Εάν ΝΑΙ πόσο συχνά ελέγχετε τα ηλεκτρονικά σας μηνύματα (e-mail);

Ποτέ	**Μια φορά / δυο φορές το μήνα**	**Μια φορά την εβδομάδα**	**Κάθε δεύτερη μέρα**	**Κάθε μέρα**

5. Ενδο - εργασιακή επιμόρφωση / κατάρτιση

5.1 Παρακαλώ να προσδιορίσετε τον αριθμό κάθε είδους επαγγελματικής επιμόρφωσης/κατάρτισης που λάβατε στον τομέα των υπολογιστών στην εκπαίδευση (π.χ. 30 ώρες σε τμήμα αρχαρίων από το Πανεπιστήμιο).

Τόπος	**Σύνολο ωρών**				
	Τμήμα αρχαρίων	**Εξειδικευμένο τμήμα μικρής διάρκειας (π.χ. χρήση βάσης δεδομένων)**	**Τμήμα προχωρημένων**	**Συνέδριο εργασίας**	**Μακράς χρονικής διάρκειας τμήμα με απονομή πτυχίου**
Στο σχολείο					
Στο πανεπιστήμιο					
Στα ΠΕΚ					
Στο διαδίκτυο					
Σε ιδιωτικό οργανισμό					
Αλλού (παρακαλώ προσδιορίστε):					

6. Χρήση υπολογιστών στη διοίκηση

6.1 Χρησιμοποιείτε ως προϊστάμενος υπολογιστές στην εκπαιδευτική σας εργασία για διοικητικούς σκοπούς; ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 7.

6.2 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιείτε υπολογιστές** ως προϊστάμενος στην εκπαιδευτική εργασία σας για διοικητικούς σκοπούς.

Ποτέ	Μια φορά τον μήνα	Δύο φορές τον μήνα	Δύο φορές την εβδομάδα	Κάθε μέρα

6.3 Παρακαλώ να προσδιορίσετε το **χρονικό διάστημα που ως προϊστάμενος χρησιμοποιείτε** υπολογιστές κατά τη εκπαιδευτική σας εργασία για διοικητικούς σκοπούς. (π.χ. 3 χρόνια και 2 μήνες): _____

7. Υποστήριξη για τους υπολογιστές

7.1 Παρακαλώ να προσδιορίσετε το είδος και τον βαθμό της υποστήριξης που παρέχετε στα σχολεία που εποπτεύετε για την εξέλιξή τους ως προς την χρήση υπολογιστών στην εκπαίδευση. Παρακαλώ επιλέξτε έναν αριθμό σε κάθε πρόταση **(1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ).**

1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ	
Τεχνικός εξοπλισμός	
Υποστήριξη για την απόκτηση και συντήρηση τεχνικού εξοπλισμού (σύγχρονος εξοπλισμός, δίκτυο, επισκευή και συντήρηση εξοπλισμού) για τη σχολική διαχείριση και διοίκηση.	
Υποστήριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για διδακτικούς σκοπούς.	
Λογισμικό	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διδακτικούς σκοπούς.	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διαχείριση και διοίκηση.	
Οργάνωση/διοίκηση	
Οργάνωση και διαχείριση (συμπεριλαμβανομένου προγραμματισμού) των πηγών του υπολογιστή.	
Τεχνική υποστήριξη σε δασκάλους και διευθυντές.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους δασκάλους.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους μαθητές.	
Χρήση ευκολιών των υπολογιστών για την εκπαίδευση του προσωπικού εκτός σχολικού προγράμματος.	
Πρόσβαση στο διαδίκτυο, παροχή και υποστήριξη.	
Δημιουργία εργαστηρίων πληροφορικής.	
Υποστήριξη για την σύνδεση με το διαδίκτυο.	
Υποστήριξη για την δημιουργία ιστοσελίδας.	
Επιμόρφωση	
Παροχή επιμορφωτικών δυνατοτήτων για δασκάλους.	
Παροχή επιμορφωτικών δυνατοτήτων για διευθυντές.	
Εφαρμογές αναλυτικού προγράμματος	
Πώς οι δάσκαλοι να χρησιμοποιούν τους υπολογιστές στην διδασκαλία τους.	
Πώς οι δάσκαλοι να χρησιμοποιούν υπολογιστές σε συγκεκριμένα μαθήματα.	
Πώς οι δάσκαλοι να οργανώνουν τους μαθητές στην ταξη.	
Πώς οι δάσκαλοι να ενσωματώνουν την χρήση του διαδικτύου (Internet) στην διδασκαλία τους.	
Άλλο (παρακαλώ προσδιορίστε):	

7.2 Αναλαμβάνετε / διεξάγετε προγράμματα προς βοήθεια των σχολείων στη χρήση υπολογιστών, επιχορηγούμενα από την περιφέρεια, το Υπουργείο Παιδείας, Πανεπιστήμια, την Ευρωπαϊκή Ένωση, γονείς ή άλλο οργανισμό:

ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ. παρακαλώ προχωρήστε στην ερώτηση 7.4. Εάν απαντήσατε ΝΑΙ παρακαλώ προσδιορίστε τα προγράμματα που συμμετείχατε κατά τα τελευταία 5 χρόνια.

Όνομα προγράμματος και χρονική του διάρκεια	Σκοπός του προγράμματος	Επιχορηγούμενο από:	Ηλικίες μαθητών	Αριθμός σχολείων

7.3 Ακολουθείτε κάποια πολιτική ως προς την εισαγωγή υπολογιστών σε σχολεία της περιφέρειάς σας που δεν χρησιμοποιούν;

ΝΑΙ ☐ ΟΧΙ ☐

Αν ΝΑΙ αναπτύξτε σύντομα την πολιτική σας. Αν ΟΧΙ, παρακαλώ παραθέστε τους λόγους: _____

_____

_____

7.4 Έχετε οργανώσει ποτέ επιμορφωτικά προγράμματα και σεμινάρια σχετικά με τους υπολογιστές στην εκπαίδευση για δασκάλους στα σχολεία της περιφέρειάς σας;

ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΝΑΙ. περιγράψτε εν συντομία μερικά από αυτά τα προγράμματα και τον στόχο τους: _____

_____

_____

_____

7.5 Έχετε ενθαρρύνει δασκάλους στην περιφέρειά σας να παρακολουθήσουν επιμορφωτικά τμήματα, σεμινάρια σχετικά με τους υπολογιστές στην εκπαίδευση;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΝΑΙ, παρακαλώ προσδιορίστε. _____

_____

_____

7.6 Κατά τις επισκέψεις σας σε σχολεία και συναντήσεις με δασκάλους, ζήτησαν ποτέ τη δική σας βοήθεια και υποστήριξη σχετικά με τους υπολογιστές στην τάξη;

ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΝΑΙ, τι είδους προβλήματα ήταν αυτά και σε τι ενέργειες προβήκατε για να τους βοηθήσετε; _____

_____

_____

Παρακαλώ γράψτε εν συντομία τι σημαίνει για σας ο όρος Τεχνολογίες της Πληροφορίας και της Επικοινωνίας (ΤΠΕ):

_____

_____

_____

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν κατά πόσο σκοπεύετε να υποστηρίξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προτίθεμαι να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

εντελώς απίθανο	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πολύ πιθανο

2. Θα προσπαθήσω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

3. Σχεδιάζω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ εντελώς	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνω απόλυτα

4. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών είναι για μένα:

επιβλαβής	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	ευεργετική
ευχάριστη	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δυσάρεστη
καλή	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	κακή
μάταια	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	αξιόλογη
διασκεδαστική	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	βαρετή

5. Η πλειοψηφία των πιο σημαντικών για μένα ατόμων πιστεύουν ότι:

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

6. Αναμένεται από μένα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

πολύ πιθανό	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	εντελώς απίθανο

7. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου θα

επιδοκιμάσουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	αποδοκιμάσουν

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

8 Η πλειοψηφία των πιο σημαντικών για μένα ατόμων υποστηρίζουν την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθες

9. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου

υποστηρίζουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν υποστηρίζουν

την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

10. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα ήταν για μένα

απίθανη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πιθανή

11. Εάν ήθελα θα μπορούσα εύκολα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

12. Πόσο πιστεύετε ότι μπορείτε να ελέγξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών.

καθόλου	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	απόλυτα

13. Εξαρτάται κυρίως από μένα εάν θα υποστηρίξω ή όχι την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

συμφωνώ απόλυτα	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	διαφωνώ κάθετα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πλεονεκτήματα και τα μειονεκτήματα της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

	Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών ...	
1	...θα εμπλουτίσει τις γνώσεις των μαθητών.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
2	...θα βοηθήσει τους αδύνατους μαθητές να βελτιωθούν.	πολύ πιθανό: ___:___:___:___:___:___:___ εντελώς απίθανο 7 6 5 4 3 2 1
3	...θα βοηθήσει τους μαθητές να μαθαίνουν πιο εύκολα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
4	...θα κάνει πιο ευχάριστο το μάθημα για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
5	...θα αυξήσει το ενδιαφέρον των μαθητών για μάθηση.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
6	...θα ενθαρρύνει τη δημιουργικότητα στους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
7	...θα βελτιώσει σημαντικά τη συνολική ποιότητα της εκπαίδευσης των μαθητών.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
8	...θα ειναι χάσιμο χρόνου για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
9	...θα βοηθήσει τους μαθητές στη μεταξύ τους συνεργασία.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
10	...θα βοηθήσει τους μαθητές να βρουν ευκολότερα δουλειά στο μέλλον.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών ...		
11	...θα βοηθήσει τους δασκάλους να βελτιώσουν τις γνώσεις τους στους υπολογιστές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
12	...θα επιτρέψει στους δασκάλους να έχουν μεγαλύτερη πρόσβαση στον υπολογιστή για προσωπική και επαγγελματική χρήση.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
13	...θα κάνει τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
14	...θα κάνει τα μαθήματα πιο ευχάριστα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
15	...θα κάνει τα μαθήματα περισσότερο ποικίλα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
16	...θα κάνει την προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
17	...θα βοηθήσει τους δασκάλους να οργανώσουν καλύτερα τα μαθήματά τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
18	...θα κάνει την προετοιμασία των μαθημάτων μου περισσότερο χρονοβόρα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
19	...θα περιορίσει το περιεχόμενο διδασκαλίας των μαθημάτων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
20	...θα κάνει πιο δύσκολο τον έλεγχο της τάξης.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
21	...θα προσδώσει μεγαλύτερο κύρος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
22	...θα βελτιώσει την παραγωγικότητα των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
23	...θα δημιουργήσει διαμάχες μεταξύ των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
24	...θα περιορίσει τον ρόλο των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
25	...θα βοηθήσει τους δασκάλους να επικοινωνήσουν με συναδέλφους άλλων σχολείων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
26	...θα "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
27	...θα δημιουργήσει άγχος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
28	...θα βελτιώσει την επικοινωνία ανάμεσα στους δασκάλους και τους μαθητές τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
29	...θα δημιουργήσει προβλήματα στο υπάρχον αναλυτικό πρόγραμμα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
30	...θα δημιουργήσει προβλήματα στο ωρολόγιο πρόγραμμα των σχολείων.	πολύ πιθανό: ___:___:___:___:___:___: εντελώς απίθανο 7 6 5 4 3 2 1
31	...θα υποστηρίξει την επικοινωνία των σχολείων μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό.	πολύ πιθανό: ___:___:___:___:___: : εντελώς απίθανο 7 6 5 4 3 2 1
32	...θα βοηθήσει στην καλυτερη οργάνωση των σχολείων μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
33	...θα βοηθήσει να συνεργαστεί όλο το προσωπικό των σχολείων μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
34	...θα βοηθήσει τα σχολεία μου να εφαρμόσουν άλλες καινοτομίες.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
35	...θα μου προσδώσει μεγαλύτερο κύρος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
36	...θα μου αυξήσει το άγχος.	πολύ πιθανό: ___:___:___:___:___:___: εντελώς απίθανο 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες αξιολογούν τα ανωτέρω πλεονεκτήματα και μειονεκτήματα της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1	Ο εμπλουτισμός των γνώσεων των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
2	Το να βοηθήσω τους αδύνατους μαθητές να βελτιωθούν είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
3	Το να βοηθήσω τους μαθητές να μαθαίνουν πιο εύκολα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
4	Το να γίνει το μάθημα πιο ευχάριστο για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
5	Το να αυξηθεί το ενδιαφέρον των μαθητών για μάθηση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
6	Το να ενθαρρύνω τη δημιουργικότητα των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
7	Το να βελτιώσω τη συνολική ποιότητα της εκπαίδευσης των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
8	Το χάσιμο του χρόνου για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
9	Το να βοηθήσω τους μαθητές στη μεταξύ τους συνεργασία είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
10	Το να βοηθήσω τους μαθητές να βρουν πιο εύκολα δουλειά στο μέλλον είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
11	Η βελτίωση των γνώσεων των δασκάλων στους υπολογιστές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακο 7 6 5 4 3 2 1
12	Το να έχουν οι δάσκαλοι μεγαλύτερη πρόσβαση στους υπολογιστές για προσωπική και επαγγελματική χρήση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
13	Το να γίνουν τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
14	Το να είναι τα μαθήματα πιο διασκεδαστικά για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
15	Το να είναι τα μαθήματα περισσότερο ποικίλα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
16	Το να γίνει η προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
17	Το να οργανώσουν καλύτερα τα μαθήματα οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
18	Το να γίνει η προετοιμασία των μαθημάτων περισσότερο χρονοβόρα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
19	Το να περιοριστεί το περιεχόμενο διδασκαλίας των μαθημάτων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ : :___ εξαιρετικά κακό 7 6 5 4 3 2 1
20	Το να είναι ο έλεγχος της τάξης πιο δύσκολος για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
21	Το να έχουν περισσότερο κύρος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
22	Το να βελτιώσουν οι δάσκαλοι την παραγωγικότητά τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
23	Το να έχουν διαμάχες οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
24	Ο περιορισμός του ρόλου των δασκάλων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

25	Η επικοινωνία των δασκάλων με συναδέλφους άλλων σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
26	Το να "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
27	Το να έχουν άγχος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
28	Το να βελτιωθεί η επικοινωνία ανάμεσα στους δασκάλους και στους μαθητές τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
29	Η δημιουργια προβλημάτων στο υπάρχον αναλυτικό πρόγραμμα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
30	Η δημιουργία προβλημάτων στο ωρολόγιο πρόγραμμα των σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
31	Το να υποστηριχθεί η επικοινωνία των σχολείων μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
32	Το να βοηθηθεί η καλύτερη οργάνωση των σχολείων μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
33	Το να βοηθηθεί η συνεργασία του προσωπικού των σχολείων μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
34	Το να βοηθηθούν τα σχολεία μου να εφαρμόσουν άλλες καινοτομίες είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
35	Το να έχω μεγαλύτερο κύρος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
36	Το να αυξηθεί το άγχος μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πιθανά πρόσωπα που μπορεί να επιδοκιμάσουν ή να αποδοκιμάσουν την πρόθεσή σας για υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Ο σχολικός σύμβουλος της περιοχής μου πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

2. Οι προϊστάμενοι γραφείων άλλων περιοχών πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

3. Οι σύλλογοι γονέων και κηδεμόνων πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

4. Οι μαθητές των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

5. Οι διευθυντές των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

6. Οι δάσκαλοι των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

7. Το Υπουργείο Παιδείας πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

8. Τα πανεπιστήμια πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

9. Οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρεπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

10. Η τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

11. Η Διδασκαλική Ομοσπονδία Ελλάδος πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

12. Το Παιδαγωγικό Ινστιτούτο πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

Μιλώντας γενικά, πόσο θέλετε να κάνετε αυτό που...		
1	...ο σχολικός σύμβουλος της περιοχής σας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
2	...οι προϊστάμενοι γραφείων άλλων περιοχών πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
3	...οι σύλλογοι γονέων και κηδεμόνων πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
4	...οι μαθητές των σχολείων σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
5	...οι διευθυντές των σχολείων σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
6	...οι δάσκαλοι των σχολείων σας πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
7	...το Υπουργείο Παιδείας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
8	...τα πανεπιστημια πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
9	...οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
10	...η Τοπική Αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
11	...η Διδασκαλική Ομοσπονδία Ελλάδας πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
12	...το Παιδαγωγικό Ινστιτούτο πιστεύει ότι πρέπει να κάνετε:	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν στην υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει την απόλυτη διαφωνία ενώ ο αριθμός 7 δηλώνει την απόλυτη συμφωνία. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προσδοκώ ότι επαρκής αριθμός υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) θα υπάρχει στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ καθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

2. Προσδοκώ ότι θα υπάρχει στα σχολεία της περιοχής μου αρκετό εκπαιδευτικό λογισμικό για εκπαιδευτικούς σκοπούς κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

3. Προσδοκώ ότι τεχνική βοήθεια για την λειτουργία και διατήρηση των υπολογιστών θα υπάρχει στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

4. Προσδοκώ ότι θα υπάρχει επαρκής οικονομική στήριξη για τους δασκάλους των σχολείων της περιοχής μου αλλά και για μένα κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

5. Προσδοκώ ότι θα υπάρχει κατάλληλο εργαστήριο υπολογιστών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

6. Προσδοκώ ότι θα υπάρχει μικρός αριθμός μαθητών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

7. Προσδοκώ ότι θα προγραμματιστεί στα σχολεία της περιοχής μου αρκετός χρόνος για την χρήση υπολογιστών ανά τάξη κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

8. Προσδοκώ ότι η χρήση των υπολογιστών θα ενσωματωθεί στο ισχύον Αναλυτικό Πρόγραμμα στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

9. Προσδοκώ ότι οι δάσκαλοι θα έχουν αρκετό χρόνο για να αναπτύξουν τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

10. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους δασκάλους κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	: 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

11. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τον σχολικό σύμβουλο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

12. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από προϊσταμένους άλλων περιοχών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ καθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

13. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους διευθυντές κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

14. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους συλλόγους γονέων και κηδεμόνων κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

15. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από το Υπουργείο Παιδείας κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

16. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από το Παιδαγωγικό Ινστιτούτο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ καθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

17. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από την τοπική αυτοδιοίκηση (Δήμος. Νομαρχία) κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

18. Προσδοκώ ότι οι μαθητές θα θέλουν να χρησιμοποιήσουν υπολογιστές στα σχολεία της περιοχής μου κατά την διάρκεια της τρέχουσας σχολικής χρονιάς.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

19. Προσδοκώ ότι θα υπάρχει συνεχής σύνδεση στο διαδίκτυο στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

20. Προσδοκώ ότι θα υπάρχουν στα σχολεία της περιοχής μου επαρκείς δυνατότητες επιμόρφωσης των εκπαιδευτικών στην παιδαγωγική χρήση των υπολογιστών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν το να υποστηρίξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Παρακαλώ σε κάθε πρόταση να επιλέξετε έναν αριθμό που να αντιπροσωπεύει την απάντησή σας.

1. Η ύπαρξη επαρκούς αριθμού υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

2. Η ύπαρξη αρκετού εκπαιδευτικού λογισμικού για εκπαιδευτικούς σκοπούς στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ..

3. Το να υπάρχει τεχνική βοήθεια για την λειτουργία και συντήρηση των υπολογιστών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

4. Επαρκής οικονομική στήριξη για τους δασκάλους στα σχολεία της περιοχής μου αλλά και για μένα κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

5. Ένα κατάλληλο εργαστήριο πληροφορικής στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

6. Ο μικρός αριθμός μαθητών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

7. Το να προγραμματιστεί αρκετός χρόνος για χρήση υπολογιστών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

8. Η ενσωμάτωση της χρήσης των υπολογιστών στο ισχύον Αναλυτικό Πρόγραμμα στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

9. Η ύπαρξη αρκετού χρόνου για να αναπτύξουν οι δάσκαλοι τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

10. Η υποστήριξη των δασκάλων των σχολείων της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

11. Η υποστήριξη του προϊστάμενου της διεύθυνσης στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

12. Η υποστήριξη του σχολικού συμβούλου στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

13. Η υποστήριξη των διευθυντών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δυσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

14. Η υποστήριξη των συλλόγου γονέων και κηδεμόνων στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

15. Η υποστήριξη του Υπουργείου Παιδείας στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

16. Η υποστήριξη του Παιδαγωγικού Ινστιτούτου στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

17. Η υποστήριξη της τοπικής αυτοδιοίκησης (Δήμος, Νομαρχία) στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

18. Το να θέλουν οι μαθητές μου να χρησιμοποιήσουν υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

19. Η ύπαρξη συνεχούς σύνδεσης στο διαδίκτυο στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

20. Το να υπάρχουν επαρκείς δυνατότητες επιμόρφωσης στην παιδαγωγική χρήση των υπολογιστών για τους δασκάλους στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	: 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

Μέρος 3°

Στη συνέχεια του ερωτηματολογίου υπάρχουν κάποιες στάσεις απέναντι στους υπολογιστές. Παρακαλώ, κυκλώστε ένα αριθμό σε κάθε πρόταση, δηλώνοντας την απάντηση που σας αντιπροσωπεύει.

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
1	Έχω κουραστεί να χρησιμοποιώ υπολογιστη.	1	2	3	4	5
2	Οι υπολογιστές δεν είναι συναρπαστικοί.	1	2	3	4	5
3	Αν μου δινόταν η ευκαιρία, θα ήθελα να μάθω για τους υπολογιστες και τη χρήση τους.	1	2	3	4	5
4	Νομίζω ότι οι υπολογιστές είναι πολύ εύκολοι στη χρηση τους.	1	2	3	4	5
5	Οι υπολογιστές θα μπορούσαν να βοηθήσουν στην ενισχυτική διδασκαλία.	1	2	3	4	5
6	Θα εργαστώ με υπολογιστή όσο το δυνατόν λιγότερο.	1	2	3	4	5
7	Τα επιμορφωτικά προγράμματα για τους υπολογιστές στο χώρο εργασίας πρέπει να γίνουν υποχρεωτικά.	1	2	3	4	5
8	Η χρήση υπολογιστή στην τάξη οδηγεί σε αυξημένη απόδοση των μαθητών.	1	2	3	4	5
9	Συγκεντρώνομαι στον υπολογιστή, όταν τον χρησιμοποιώ.	1	2	3	4	5
10	Νομίζω ότι η εργασία με υπολογιστές θα ήταν ευχάριστη και ενδιαφέρουσα.	1	2	3	4	5
11	Θα ήθελα να συμμετάσχω σε μάθημα πληροφορικής για να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
12	Θα δούλευα πιο εντατικά αν είχα τη δυνατότητα να χρησιμοποιώ υπολογιστές συχνότερα.	1	2	3	4	5
13	Μερικές φορές φοβάμαι όταν πρέπει να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
14	Η πρόκληση να λύνω προβλήματα με υπολογιστή δεν με ελκύει.	1	2	3	4	5
15	Οι υπολογιστές βλάπτουν τις σχεσεις μεταξύ των ανθρώπων.	1	2	3	4	5
16	Νιώθω άνετα όταν εργάζομαι με υπολογιστή.	1	2	3	4	5
17	Είμαι βέβαιος/-η ότι θα μπορούσα να εργαστώ με υπολογιστές.	1	2	3	4	5
18	Η εργασία με υπολογιστές στην τάξη διαστρεβλώνει το κοινωνικό κλίμα.	1	2	3	4	5
19	Αν προέκυπτε πρόβλημα με κάποιο πρόγραμμα του υπολογιστή που δεν μπορώ να λύσω άμεσα, θα επέμεινα σε αυτό μέχρι να βρω την λύση.	1	2	3	4	5
20	Μου αρέσει να ασχολούμαι με έναν υπολογιστή.	1	2	3	4	5
21	Οι υπολογιστές με κάνουν να νιώθω αμήχανος/-η και μπερδεμένος/-η.	1	2	3	4	5
22	Είμαι βέβαιος ότι θα μπορούσα να μάθω μια γλώσσα προγραμματισμού (για τον υπολογιστή).	1	2	3	4	5
23	Οι μαθητές προσέχουν περισσότερο όταν στην τάξη χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
24	Ξέρω ότι οι υπολογιστές μου δίνουν την ευκαιρία να μάθω νέα πράγματα.	1	2	3	4	5
25	Η χρήση των υπολογιστών είναι δύσκολη.	1	2	3	4	5
26	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) αυξάνει τα κίνητρα στους μαθητές για το μάθημα.	1	2	3	4	5
27	Θα χρησιμοποιήσω τους υπολογιστές με πολλούς τρόπους στη ζωή μου.	1	2	3	4	5
28	Δεν μπορώ να σκεφτώ κανένα τρόπο που θα χρησιμοποιήσω υπολογιστή στην καριέρα μου.	1	2	3	4	5
29	Πρέπει να εισαι "μυαλό" για να εργάζεσαι με υπολογιστές.	1	2	3	4	5
30	Η εκμάθηση των υπολογιστών είναι χάσιμο χρόνου.	1	2	3	4	5
31	Οι υπολογιστές στο σχολείο εξαίρουν τη δημιουργικότητα των μαθητών.	1	2	3	4	5
32	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
33	Προσπαθώ να ενημερώνομαι για τις τεχνολογικές εξελίξεις.	1	2	3	4	5

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
34	Δεν μου αρέσει να συζητώ με άλλους για υπολογιστές.	1	2	3	4	5
35	Οι υπολογιστές συντελούν στην πιο αποδοτική διδασκαλία.	1	2	3	4	5
36	Οι υπολογιστές δεν με φοβίζουν καθόλου.	1	2	3	4	5
37	Η χρήση ενός υπολογιστή με εμποδίζει να είμαι δημιουργικός/-ή.	1	2	3	4	5
38	Οι επιδόσεις των μαθητών μπορουν να αυξηθούν όταν στη διδασκαλία χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
39	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές ως ενισχυτικά μέσα διδασκαλίας.	1	2	3	4	5
40	Θα μου άρεσε να εργάζομαι με υπολογιστές.	1	2	3	4	5
41	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μάθημα πιο ενδιαφέρον.	1	2	3	4	5
42	Δεν με πειράζει να μάθω για τους υπολογιστές.	1	2	3	4	5
43	Η εργασία με υπολογιστή με κάνει νευρικο/-ή.	1	2	3	4	5
44	Οι υπολογιστές είναι πολύτιμα εργαλεία για τη βελτίωση της ποιότητας της εκπαίδευσης των μαθητών.	1	2	3	4	5
45	Πιθανώς δεν θα μάθω ποτέ να χρησιμοποιώ υπολογιστές.	1	2	3	4	5
46	Οι κοινωνικές επαφές επηρεάζονται αρνητικά από τη χρήση των υπολογιστών.	1	2	3	4	5
47	Οι υπολογιστές μπορούν να χρησιμοποιηθούν με επιτυχία σε μαθήματα που απαιτούν δημιουργικές δραστηριότητες.	1	2	3	4	5
48	Είναι ενδιαφέρον να μαθαίνει κανείς για υπολογιστές.	1	2	3	4	5
49	Διστάζω να χρησιμοποιήσω υπολογιστές από φόβο ότι θα κάνω λάθη που δεν μπορώ να διορθώσω.	1	2	3	4	5
50	Τα άτομα που εργάζονται με υπολογιστές κάθονται μπροστά σε μια οθόνη όλη την ημέρα.	1	2	3	4	5
51	Έχω πολλή αυτοπεποίθηση όσον αφορά την εργασία με υπολογιστές.	1	2	3	4	5
52	Οι υπολογιστές θα βοηθούσαν τους μαθητές να συνεργάζονται μεταξύ τους.	1	2	3	4	5
53	Πιστεύω ότι είναι πολύ σημαντικό για μένα να μάθω να χειρίζομαι έναν υπολογιστή.	1	2	3	4	5
54	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κανει το μαθητή να νιώθει ότι συμμετέχει περισσότερο.	1	2	3	4	5
55	Η πρόκληση της μάθησης με υπολογιστές με συναρπάζει.	1	2	3	4	5
56	Δεν θα δεχόμουν ποτέ μια δουλειά, όπου θα έπρεπε να εργάζομαι με υπολογιστές.	1	2	3	4	5
57	Απογοητεύομαι όταν σκέπτομαι οτι προσπαθώ να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
58	Οι υπολογιστές μπορούν να είναι χρήσιμο βοήθημα διδασκαλίας σε όλα σχεδόν μαθήματα.	1	2	3	4	5
59	Δεν νομίζω ότι θα έκανα υψηλού επιπέδου εργασίες με τους υπολογιστές.	1	2	3	4	5
60	Θα ήθελα να περνάω περισσότερη ώρα χρησιμοποιώντας υπολογιστές.	1	2	3	4	5
61	Νιώθω άνετα όταν έχω γύρω μου υπολογιστές.	1	2	3	4	5
62	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) βοηθάει το μαθητή να μάθει περισσότερα.	1	2	3	4	5

Σας ευχαριστώ πολύ για την συνεργασία σας
Γεώργιος, Ι. Κουτρομάνος, Υποψήφιος Διδάκτορας
School of Social Science and Public Policy Department of Education and Professional Studies King's College London University of London

APPENDIX D1: SCHOOL COUNSELLOR QUESTIONNAIRE

CONFIDENTIAL

CODE

School Counsellor Questionnaire

The main objective of this questionnaire is to know the current state of ICT in Greek primary schools. The questionnaire is divided into three parts. In Part 1 you are asked to provide some basic information about yourself and your experience of computers. You are asked to provide general information about the kind of support that you provide to schools in your district, which use computers. Part 2 and 3 aims to elicit more detailed information by asking you to indicate the extent to which you agree or disagree with a number of statements provided

Part 1

1 Personal Information

1.1. Name_____

1.2. Sex: Male ☐ Female ☐

1.3. Age: 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ over 55 ☐

1.4 Name of the district: _____

1.5 Contact address: _____

1.6 Contact fax / telephone number: _____

1.7 E-mail address: _____

1.8 Degree (s) and specialisation (s):

Pedagogical Academy ☐ Faculty of Primary Education ☐

Eksomiosi ☐ Maraslion Didaskalion of Primary Education ☐

Other degree ☐ Please specify:_____

Master ☐ Please specify: _____

PhD ☐ Please specify: _____

Other ☐ Please specify: _____

1.9 Years of teaching experience: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ over 25 ☐

1.10.How long have you been a school counsellor at this district? _____

2 General Information about your district

2.1 Please indicate the number and the characteristics of schools of your district.

		Urban	Semi-urban	Rural	Other (please specify):
State	Number of schools				
Private					
Experimental					
Schools with hour extended programme					
Other (please specify):					

2.2 How many teaching staff is there in the schools of your district? _____

2.3 How many students are enrolled in the schools of your district? _____

2.4 Please indicate your district schools overall use of computers and the length of time they have been using each mode.

School computer use		Period of time						
		Less than 1 year	1-2 years	2-4 years	4-6 years	6-8 years	8-10 years	More than 10 years
School administration	Number of schools							
Teaching pupils								
Individual teacher's personal use								

2.5 Is your office connected to the Internet? YES ☐ NO ☐

2.6 If YES has your office created its own web site? YES ☐ NO ☐

3. Your computer experience and knowledge

3.1 Please tick one box on each line.

	none	a little	average	quite a lot	a lot
How much do you know about computers?	1	2	3	4	5
	no good	**weak**	**average**	**quite good**	**very good**
How good are you at using programs?	1	2	3	4	5

3.2 Please indicate your knowledge and expertise in computers. Please indicate by drawing a circle round the appropriate number.

I Know ...	none	a little	quite a lot	a lot
1. The difference between mainframe computers and personal computers.	1	2	3	4
2. The difference between the operating system and an application package.	1	2	3	4
3. The trends in hardware development in the past 30 years.	1	2	3	4
4. Criteria to judge the quality of a printer.	1	2	3	4
5. What "file extensions" are.	1	2	3	4
6. What a "loop" means in programming.	1	2	3	4
7. What a "relational database" is like.	1	2	3	4
8. What a "bit" is defined as.	1	2	3	4
9. The difference between "RAM" and "ROM".	1	2	3	4
10. The difference between a word processor and a desktop publishing programme.	1	2	3	4

I can ...	not at all	a little	well	very well
1. Load software.	1	2	3	4
2. Format disks.	1	2	3	4
3. Check virus.	1	2	3	4
4. Manage files.	1	2	3	4
5. Connect computer to external devices.	1	2	3	4
6. Use help-facilities.	1	2	3	4
7. Create sub-directories.	1	2	3	4
8. Send an email.	1	2	3	4
9. Search the World Wide Web.	1	2	3	4
10. Download files from email or World Wide Web.	1	2	3	4

4. Personal use of computers

4.1 Do you have access to a computer for personal use outside of your workplace?

YES ☐ NO ☐ If NO, please move on to section 5.

4.2 Who owns the computer you use outside of your workplace (e.g. you, your husband/wife/partner)? _____

4.3 Please indicate which type of computer you use:

Desktop PC		Laptop		Desktop Apple Mac	

4.4 Please indicate **how often you use** computers for personal purpose outside of your workplace. Please answer each of the following sentences by circling the appropriate response.

	never	about an hour each month	about an hour each week	several hours a week	more than an hour a day
Word processing	1	2	3	4	5
Spreadsheets	1	2	3	4	5
Databases	1	2	3	4	5
Desk-top publishing	1	2	3	4	5
Art/graphics software	1	2	3	4	5
CD-ROM software	1	2	3	4	5
E-mail	1	2	3	4	5
World Wide Web	1	2	3	4	5
Games	1	2	3	4	5
Other (please specify)	1	2	3	4	5

4.5 Please also indicate **how long** you use computers for personal purpose outside of your workplace.

	Period of time (e.g. 3 years and 2 months)		**Period of time** (e.g. 3 years and 2 months)
Word processing		CD-ROM software	
Spreadsheets		E-mail	
Databases		World Wide Web	
Desk-top publishing		Games	
Art/graphics software		Other (please specify):	

4.6 Do you have access to the Internet outside of your workplace? YES ☐ NO ☐ If NO, please move on to section 5.

4.7 Do you have an E-mail address? YES ☐ NO ☐

If NO, please go to section 5. If YES, how often do you check your e-mail?

Never	Once/twice a month	Once a week	Every other Day	Every day

5 Staff development training

5.1 Please indicate the time period (in hours) of each form of training in ICT education **you** have received in your career. If you do not use computer or you have not received any training please move on to section 6.

Location	Hours of courses received				
	Initial awareness course	Short special course (e.g. using databases)	Advanced course	Working conference	Longer award bearing course
In school					
In university					
LEA Centre					
On-line					
Private institute					
Other (please specify)					

6. Using computers in your educational work

6.1 Do you use computers in your educational work?

YES ☐ NO ☐ If you answered NO please move on to section 7.

6.2 Please, indicate **how often** you use computers in your educational work.

Never	Once a month	Twice a month	Twice a week	Every day

6.2 Please, indicate **how long** you use computers in your educational work (e.g. 3 years and 2 months): _____

7. Computer support

7.1 Please indicate the kind of support you provide to your schools for their development in the use of computers in education. Please choose a number for each item (1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot).

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot	
Hardware	
Support for acquisition of hardware for school management and administration.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for school management and administration.	
Support for acquisition of hardware for teaching purposes.	
Support for the maintenance of hardware (equipment upgrades, networking, repair and maintenance of equipment) for teaching purposes.	

1 = none, 2 = little, 3 = average, 4 = quite a lot, 5 = a lot	
Software	
Support for acquisition of new software for teaching purposes.	
Support for acquisition of new software for management and administration.	
Organization/administration	
Organization and management (including timetabling) of computer resources.	
Technical assistance to teachers and head teachers.	
Provision of training opportunities for teachers	
Provision of training opportunities for head teachers	
The use of computer facilities outside school hours by teachers.	
The use of computer facilities outside school hours by students.	
The use of computer facilities outside school hours for staff development.	
Establishment of computer laboratories.	
Support for the connection to the Internet.	
Support for the creation of a web site.	
Curriculum applications	
How teachers should use computers in their teaching.	
How teachers should use computers in specific subjects.	
How teachers should organize pupils in the classroom.	
How teachers should incorporate use of the Internet into their teaching.	
Other (please specify):	

7.2 Have you been running projects to help schools using computers funded by the district, Ministry of Education, Universities, European Union, parents, or other institution?

YES ☐ NO ☐

If NO, please go to question 7.3. If YES please indicate the project(s) your district has been involved in during the last 5 years.

Name of project(s)	Purpose of project(s)	Funded by	Ages of pupils	Number of schools

7.3 Do you have a policy to introduce computers in schools, which are not using computers?

YES ☐ NO ☐

If YES, please specify. If NO, please specify the reasons why not: _____

_____

7.4 Have you organized training programmes and seminars about computers in education for teachers in the schools in your district?

YES ☐ NO ☐

If YES, describe in brief some of these programmes and their aim: _____

7.5 Have you encouraged teachers in your area to participate in training courses, seminars about computers in education with your help and support?

YES ☐ NO ☐ If YES, please specify. _____

7.6 During your visits to schools and your meetings with teachers, have they asked for your aid and support about computers in their classroom?

YES ☐ NO ☐

If YES, what kind are these problems and what steps would you take to help them? _____

Part 2

Please explain in a few words what ICT means to you. _____

In the questionnaire you are about to fill out, we ask you questions which make use of rating scales with seven options. You are to check mark (√) the option that best describes your opinion. More specifically, in this questionnaire we are mainly concerned with school counsellors' views toward supporting the uptake of Information Communication Technology (ICT) in their schools.

1. I intend to support the uptake of ICT in schools of my district during the next three months.

extremely unlikely	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	extremely likely

2. I will try to support the uptake of ICT in schools of my district during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 3	:___ 1	definitely false

3. I plan to support the uptake of ICT in schools of my district during the next three months.

strongly disagree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 1	:___ 2	:___ 3	strongly agree

4. For me to support the uptake of ICT in schools of my district during the next three months is

harmful	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	beneficial
pleasant	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unpleasant
good	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	bad
worthless	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	valuable
enjoyable	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	unenjoyable

5. Most people who are important to me think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

6. It is expected of me that I support the uptake of ICT in schools of my district during the next three months.

extremely likely	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	extremely unlikely

7. The people in my life whose opinions I value would

approve	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	disapprove

of my supporting the uptake of ICT in schools of my district during the next three months.

8. Most people who are important to me support the uptake of ICT in schools.

completely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	completely false

9. The people in my life whose opinions I value

support	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	do not support

the uptake of ICT in schools

10. For me to support the uptake of ICT in schools of my district during the next three months would be

impossible	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	possible

11. If I wanted to I could support the uptake of ICT in schools of my district during the next three months.

definitely true	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	definitely false

12. How much control do you believe you have over supporting the uptake of ICT in schools of my district during the next three months?

no control	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	complete control

13. It is mostly up to me whether or not I support the uptake of ICT in schools of my district during the next three months.

strongly agree	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	strongly disagree

Behavioural belief strength

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
1	*...enrich pupils' knowledge.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
2	*... help the weak pupils improve.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
3	*...help pupils learn more easily.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
4	*...make the lessons more fun for the pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
5	*...increase pupils' interest in learning.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
6	*...stimulate creativity in pupils.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
7	*...significantly improve the overall quality of pupils' education.*	extremely unlikely: ___:___:___:___:___:___: extremely likely 1 2 3 4 5 6 7
8	*...be a waste of time for pupils.*	extremely unlikely: ___:___:___:___:___:___: extremely likely 1 2 3 4 5 6 7
9	*...help pupils work with one another.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
10	*...help pupils to find a job easier in future.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
11	*...help teachers to improve their ICT expertise.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
12	*...allow teachers greater access to a computer for personal and professional use.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
13	*...make lessons more interesting for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
14	*...make the lessons more enjoyable for teachers.*	extremely unlikely: ___:___:___:___:___:___: extremely likely 1 2 3 4 5 6 7
15	*...make lessons more diverse.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
16	*...make preparation for lessons easier for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
17	*...help teachers organise better their lessons*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
18	*...make preparation for lessons more time consuming for teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
19	*...restrict the content of lessons.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
20	*...make it more difficult for teachers to control the class.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
21	*...give teachers more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
22	*...improve teachers' productivity.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
23	*...cause conflicts among teachers.*	extremely unlikely: ___:___:___:___:___:___: extremely likely 1 2 3 4 5 6 7
24	*...restrict teachers' role.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
25	*...help teachers communicate with colleagues in other schools.*	extremely unlikely: ___:___:___:___:___: : extremely likely 1 2 3 4 5 6 7
26	*...save teachers more time and work.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
27	*...cause teachers stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
28	*...improve communication among the pupils and teachers.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
29	*...create problems in the current curriculum.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
30	*...create problems in the school timetable.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
31	*...support the communication of my schools with other schools in Greece and abroad.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Supporting the uptake of Information Communication Technology in schools of my district during the next three months will...		
32	*...help schools' organisation better.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
33	*...help the schools' personnel to cooperate.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
34	*...help my schools to implement other innovations.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
35	*...give me more prestige.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7
36	*...cause me stress.*	extremely unlikely: ___:___:___:___:___:___:___ extremely likely 1 2 3 4 5 6 7

Outcome evaluation

1	*Enriching pupils' knowledge is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
2	*Helping the weak pupils improve is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
3	*Helping pupils' learning more easily is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
4	*Making the lessons more fun for the pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
5	*Increasing pupils' interest in learning is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
6	*Stimulating creativity in pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
7	*Improving the overall quality of pupils' education is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
8	*Waste of time for pupils is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
9	*Helping pupils work with one another is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
10	*Helping pupils find a job easier in future is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
11	*Improving teachers ICT expertise is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
12	*Allowing teachers greater access to a computer for personal and professional use is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
13	*Making lessons more interesting for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
14	*Making lessons more enjoyable for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
15	*Making lessons more diverse is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
16	*Making preparation for lessons easier for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
17	*Organising lessons better for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
18	*Making preparation for lessons more time - consuming for teachers is:*	extremely bad :___: ___ :___ :___ :___ : :___ extremely good 1 2 3 4 5 6 7
19	*Restricting the content of lessons is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
20	*Making the control of the class more difficult for teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
21	*Giving teachers more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
22	*Improving teachers' productivity is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

23	*Having teachers conflicting with their colleagues is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
24	*Restricting teachers' role is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
25	*Helping teachers communicate with colleagues in other schools is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
26	*Saving teachers more time and work is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
27	*Causing teachers stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
28	*Improving communication among pupils and teachers is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
29	*Creating problems in the current curriculum is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
30	*Creating problems in the schools timetable is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
31	*Supporting the communication of my schools with other schools in Greece and abroad is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
32	*Helping schools' better organisation is:*	extremely bad :___: ___ :___ :___ :___ :___ : extremely good 1 2 3 4 5 6 7
33	*Helping the schools' personnel to cooperate is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
34	*Helping schools to implement other innovations is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
35	*Having more prestige is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7
36	*Having stress is:*	extremely bad :___: ___ :___ :___ :___ :___ :___ extremely good 1 2 3 4 5 6 7

Normative belief strength

1. The district officer of my district thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

2. The school counsellors of other districts think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

3. Parents' association of my district thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

4. Pupils of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

5. Head teachers of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

6. Teachers of my district think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

7. The Ministry of Education thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

8. Universities think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

9. Private computer companies think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

10. Local authorities (Municipality, Prefecture) think that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

11. Greek primary teachers' federation thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

12. The Pedagogical Institute thinks that

I should	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	I should not

support the uptake of ICT in schools of my district during the next three months.

Motivation to comply

Generally speaking, how much do you want to do what...		
1	*...the district officer of your district thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
2	*...the school counsellors of other districts think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
3	*...parents' association of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
4	*... pupils of your district think you should do?*	not at all :___: :___ :___ :___ :___ : very much 1 2 3 4 5 6 7

Generally speaking, how much do you want to do what...		
5	*...the head teachers of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
6	*...teachers of your district think you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
7	*...the Ministry of Education thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
8	*...universities thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
9	*...private computer companies thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
10	*...local authorities (Municipality, Prefecture) thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
11	*...Greek primary teachers' federation thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7
12	*...the Pedagogical Institute thinks you should do?*	not at all :___: ___ :___ :___ :___ :___ :___ very much 1 2 3 4 5 6 7

Control belief strength

1. I expect that sufficient number of computers and peripherals (e.g. printer) will be available at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

2. I expect that enough software for teaching purposes will be available at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

3. I expect that technical assistance for operating and maintaining computers will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

4. I expect that adequate financial support for teachers and me will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

5. I expect that an appropriate computer room will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

6. I expect that there will be a small number of pupils in each class at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

7. I expect that enough computer time for each class will be scheduled at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

8. I expect that computers' use will be integrated in the existing prescribed class curriculum at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

9. I expect that teachers will have enough time to develop lessons in which computers are used at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

10 I expect that support will be provided at schools of my district by teachers of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

11. I expect that support will be provided at schools of my district by the district officer during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

12. I expect that support will be provided at schools of my district by the school counsellors of other districts during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

13. I expect that support will be provided at schools of my district by the head teachers of other schools during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

14. I expect that support will be provided at schools of my district by the parents' association during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

15. I expect that support will be provided by the Ministry of Education at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

16. I expect that support will be provided by the Pedagogical Institute at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

17. I expect that support will be provided by the local authorities (Municipality, Prefecture) at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

18. I expect that pupils will want to use ICT at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

19. I expect that enough connections to the Internet will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

20. I expect that sufficient training opportunities on the pedagogical use of computers for teachers will be provided at schools of my district during the next three months.

strongly disagree	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	strongly agree

Control belief power

1. The availability of sufficient number of computer and peripherals (e.g. printer) at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

2. The availability of enough software for teaching purposes at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

3. Being provided with technical assistance for operating and maintaining computers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

4. Adequate financial support for the teachers and for me at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT in my school.

5. An appropriate computer room at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

6. The small number of pupils in each class at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

7. The scheduling of enough computer time for each class at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

8. The integration of computer use in the existing prescribed class curriculum at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

9. Enough time to develop lessons in which computers are used at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

10. The support of the teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

11. The support of the district officer at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

12. The support of the school counsellors of other districts at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

13. The support of the head teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

14. The support of the parents' association at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

15. The support of the Ministry of Education at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

16. The support of the Pedagogical Institute at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

17. The support of the local authorities (Municipality, Prefecture) at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

18. For pupils to want to use ICT at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

19. The provision of enough connections to the Internet at schools of my district of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

20. Being provided with sufficient training opportunities on the pedagogical use of computers for teachers at schools of my district during the next three months would make it

much more difficult	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	much easier

for me to support the uptake of ICT.

Part 3

Attitudes towards computers

Please circle the appropriate number to indicate your agreement or disagreement with each statement.

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
1	I am tired of using a computer.	1	2	3	4	5
2	Computers are not exciting.	1	2	3	4	5
3	If given the opportunity, I would like to learn about and use computers.	1	2	3	4	5
4	I think that computers are very easy to use.	1	2	3	4	5
5	Computers could enhance remedial instruction.	1	2	3	4	5
6	I will do as little work with computers as possible.	1	2	3	4	5
7	In-service training courses about computers should be made compulsory.	1	2	3	4	5
8	Using computers in class leads to more productivity among students.	1	2	3	4	5
9	I concentrate on a computer when I use one.	1	2	3	4	5
10	I think working with computers would be enjoyable and stimulating.	1	2	3	4	5
11	I would like to take part in a computer course to learn more about computers.	1	2	3	4	5
12	I would work harder if I could use computers more often.	1	2	3	4	5
13	I sometimes feel intimidated when I have to use a computer.	1	2	3	4	5
14	The challenge of solving problems with computers does not appeal to me.	1	2	3	4	5
15	Computers harm relations between people.	1	2	3	4	5
16	I feel comfortable working with a computer.	1	2	3	4	5
17	I am sure I could do work with computers.	1	2	3	4	5
18	Working with computers in class distorts the social climate.	1	2	3	4	5
19	When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.	1	2	3	4	5
20	I enjoy doing things on a computer.	1	2	3	4	5
21	Computers make me feel uneasy and confused.	1	2	3	4	5
22	I am sure I could learn a computer language.	1	2	3	4	5
23	Students are more attentive when computers are used in class.	1	2	3	4	5
24	I know that computers give me opportunities to learn new things.	1	2	3	4	5
25	Computers are difficult to use.	1	2	3	4	5
26	The use of E-mail increases motivation for the course.	1	2	3	4	5
27	I will use computers many ways in my life.	1	2	3	4	5
28	I can't think of any way that I will use computers in my career.	1	2	3	4	5
29	Computers have become too dominant over us.	1	2	3	4	5
30	Learning about computers is a waste of time.	1	2	3	4	5
31	Computers in school enhance students' creativity.	1	2	3	4	5
32	I would like to learn more about computers.	1	2	3	4	5
33	I try to keep myself informed about technological changes.	1	2	3	4	5
34	I do not enjoy talking with others about computers.	1	2	3	4	5
35	Computers help to teach more effectively.	1	2	3	4	5
36	Computers do not scare me at all.	1	2	3	4	5
37	Using a computer prevents me from being creative.	1	2	3	4	5
38	The achievement of students can be increased when using computers for teaching.	1	2	3	4	5
39	I would like to learn more about computer as teaching aids.	1	2	3	4	5
40	I would like working with computers.	1	2	3	4	5

1 = Strongly Disagree (SD), 2 = Disagree (D), 3= Undecided (U), 4 = Agree (A), 5 = Strongly Agree (SA)		**Strongly Disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
41	The use of E-mail makes the course more interesting.	1	2	3	4	5
42	I don't mind learning about computers.	1	2	3	4	5
43	Working with computer makes me nervous.	1	2	3	4	5
44	Computers are valuable tools for improving the quality of a child's education.	1	2	3	4	5
45	I will probably never learn to use a computer.	1	2	3	4	5
46	Social contacts are negatively affected by the use of computers.	1	2	3	4	5
47	Computers can be used successfully with courses which demand creative activities.	1	2	3	4	5
48	Learning about computers is interesting.	1	2	3	4	5
49	I hesitate to use a computer for fear of making mistakes I cannot correct.	1	2	3	4	5
50	We will lose control over computers one day.	1	2	3	4	5
51	I have a lot of self - confidence when it comes to working with computers.	1	2	3	4	5
52	Computers would help students work with one another.	1	2	3	4	5
53	I believe that it is very important for me to learn how to use a computer.	1	2	3	4	5
54	The use of E-mail makes the student feel more involved.	1	2	3	4	5
55	The challenge of learning about computers is exciting.	1	2	3	4	5
56	Computers reduce humans to number.	1	2	3	4	5
57	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
58	Computers can be a useful instructional aid in almost all subject areas.	1	2	3	4	5
59	I don't think I would do advanced computers work.	1	2	3	4	5
60	I would like to spend more time using a computer.	1	2	3	4	5
61	I feel at ease when I am around computers.	1	2	3	4	5
62	The use of e-mail helps the student to learn more.	1	2	3	4	5

Thank you very much for your cooperation

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APPENDIX D2: SCHOOL COUNSELLOR QUESTIONNAIRE
(Greek version)

ΕΜΠΙΣΤΕΥΤΙΚΟ

ΚΩΔΙΚΟΣ

Ερωτηματολόγιο Σχολικού Συμβούλου

Βασικός σκοπός αυτού του ερωτηματολογίου είναι η διερεύνηση της υπάρχουσας κατάστασης των υπολογιστών στα ελληνικά δημοτικά σχολεία. Το ερωτηματολόγιο χωρίζεται σε τρία μέρη. Στο πρώτο μέρος σας ζητείτε να παρουσιάσετε ορισμένες βασικές πληροφορίες για τον εαυτό σας και την εμπειρία σας στους υπολογιστές. Σας ζητείτε επίσης να δώσετε γενικές πληροφορίες σχετικά με το είδος της υποστήριξης που παρέχετε στα σχολεία της περιφέρειάς σας που χρησιμοποιούν υπολογιστές. Στο δεύτερο και τρίτο μέρος επιδιώκεται να συλλεχθούν πιο λεπτομερείς πληροφορίες ζητώντας σας να προσδιορίσετε κατά πόσον συμφωνείτε ή διαφωνείτε με έναν αριθμό δηλώσεων που παρατίθενται.

Μέρος 1ο

1 Προσωπικές Πληροφορίες

1.1. Όνομα: _____

1.2. Φύλο: Άνδρας ☐ Γυναίκα ☐

1.3. Ηλικία: 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51-55 ☐ πάνω από 55 ☐

1.4 Όνομα περιφέρειας στην οποία είστε σχολικός σύμβουλος: _____

1.5 Διεύθυνση επικοινωνίας: _____

1.6 Φαξ / Τηλέφωνο επικοινωνίας: _____

1.7 Διεύθυνση ηλεκτρονικού ταχυδρομείου (E-mail): _____

1.8 Πτυχίο(α) και ειδικότητα (ες):

Παιδαγωγική Ακαδημία ☐ Παιδαγωγικό Τμήμα Δ.Ε. ☐

Πτυχίο Εξομοίωσης ☐ Μαράσλειο Διδασκαλείο Δ.Ε. ☐

Άλλο πτυχίο ☐ Παρακαλώ προσδιορίστε: _____

Μεταπτυχιακό (Master) ☐ Παρακαλώ προσδιορίστε: _____

Διδακτορικό (PhD) ☐ Παρακαλώ προσδιορίστε: _____

Άλλο ☐ Παρακαλώ προσδιορίστε: _____

1.9 Έτη διδακτικής εμπειρίας: 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ πάνω από 25 ☐

1.10 Πόσο διάστημα είστε σχολικός σύμβουλος σε αυτή την περιφέρεια; _____

2 Γενικές Πληροφορίες

2.1 Παρακαλώ να προσδιορίσετε τον αριθμό και τα χαρακτηριστικά των σχολείων της περιφέρειάς σας (π.χ 10 δημόσια και 2 ιδιωτικά τα οποία είναι σε αστικές περιοχές).

Τύπος σχολείων		**Αστικά**	**Ημιαστικά**	**Επαρχιακά**	**Άλλο (παρακαλώ προσδιορίστε):**
Δημόσια	**Αριθμός σχολείων**				
Ιδιωτικά					
Πειραματικά					
Ολοήμερα σχολεία					
Άλλο (παρακαλώ προσδιορίστε):					

2.2 Πόσοι εκπαιδευτικοί υπηρετούν στα σχολεία της περιφέρειάς σας: _____

2.3 Πόσοι μαθητές είναι εγγεγραμμένοι στα σχολεία της περιφέρειάς σας: _____

2.4 Παρακαλώ να προσδιορίσετε το είδος χρήσης των υπολογιστών στα σχολεία της περιφέρειάς σας και τη χρονική διάρκεια που γίνεται χρήση οποιασδήποτε μορφής (π.χ υπάρχουν 2 σχολεία που χρησιμοποιούν υπολογιστές για διδασκαλία μαθητών 1-2 χρόνια και 10 σχολεία που χρησιμοποιούν για διοίκηση σχολείου 4-6 χρόνια).

Χρήση υπολογιστών στα σχολεία για:		**Χρονική περίοδος**						
		Λιγότερο από 1 χρόνο	**1-2 χρόνια**	**2-4 χρόνια**	**4-6 χρόνια**	**6-8 χρόνια**	**8-10 χρόνια**	**Πάνω από 10 χρόνια**
Διοίκηση σχολείου	**Αριθμός σχολείων**							
Διδασκαλια των μαθητών								
Προσωπική χρήση δασκάλου								

2.5 Διαθέτει το γραφείο σας πρόσβαση στο διαδίκτυο (Internet): ΝΑΙ ☐ ΟΧΙ ☐

2.6 Εάν ΝΑΙ έχει δημιουργήσει δική του ιστοσελίδα: ΝΑΙ ☐ ΟΧΙ ☐

3. Η εμπειρία και οι γνώσεις σας στους υπολογιστές

3.1 Παρακαλώ κυκλώστε την απάντηση που σας αντιπροσωπεύει σε κάθε σειρά.

	Καθόλου	Λίγο	Μέτρια	Αρκετά	Πολύ
Πόσο ευρείες γνώσεις έχετε για τους υπολογιστές:	1	2	3	4	5
	Όχι καλοί	Αδύναμοι	Μέτριοι	Αρκετά καλοί	Πολύ καλοί
Πόσο καλοί είστε στη χρήση προγραμμάτων:	1	2	3	4	5

3.2. Παρακαλώ να προσδιορίσετε τις γνώσεις και την πείρα σας στους υπολογιστές. Παρακαλώ προσδιορίστε κυκλώνοντας τον κατάλληλο αριθμό.

Γνωρίζω...	**Καθόλου**	**Ελάχι-στα**	**Αρκετά**	**Πολύ**
1. Τη διαφορά μεταξύ των υπολογιστών κεντρικού πλαισίου και των προσωπικών υπολογιστών.	1	2	3	4
2. Τη διαφορά μεταξύ λειτουργικού συστήματος και ενός πακέτου εφαρμογών.	1	2	3	4
3. Τις τάσεις εξέλιξης του τεχνικού εξοπλισμού (hardware) τα τελευταία 30 χρόνια.	1	2	3	4
4. Τα κριτήρια αξιολόγησης της ποιότητας ενός εκτυπωτή.	1	2	3	4
5. Τι είναι οι προεκτάσεις αρχείων (file extensions).	1	2	3	4
6. Τη σημασία της λέξης "loop" στη γλώσσα προγραμματισμού.	1	2	3	4
7. Τι είναι η βάση δεδομένων.	1	2	3	4
8. Πώς ορίζεται ένα "bit".	1	2	3	4
9. Τη διαφορά μεταξύ "RAM" και "ROM".	1	2	3	4
10. Τη διαφορά μεταξύ ενός επεξεργαστή κειμένου και του προγράμματος επεξεργασίας σελίδων (desktop publishing programme).	1	2	3	4

Μπορώ...	καθόλου	ελάχι-στα	καλά	πολύ καλά
1. Να φορτωνω λογισμικό στη μνήμη του υπολογιστή.	1	2	3	4
2. Να κάνω "format" στις δισκέτες.	1	2	3	4
3. Να κάνω έλεγχο για ιούς.	1	2	3	4
4. Να διαχειρίζομαι αρχεία.	1	2	3	4
5. Να συνδέω τον υπολογιστή με εξωτερικές συσκευές.	1	2	3	4
6. Να χρησιμοποιώ την παροχή ευκολιών βοηθείας.	1	2	3	4
7. Να δημιουργώ υποφακέλους.	1	2	3	4
8. Να στέλνω ηλεκτρονικό μήνυμα (e-mail).	1	2	3	4
9. Να αναζητώ πληροφορίες στο διαδίκτυο (Internet).	1	2	3	4
10. Να κατεβάζω αρχεία από ηλεκτρονικά μηνύματα ή από το διαδίκτυο.	1	2	3	4

4. Προσωπική χρήση υπολογιστών (εκτός εργασιακού χώρου)

4.1 Έχετε πρόσβαση σε υπολογιστή για προσωπική χρήση εκτός εργασιακού χώρου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 5.

4.2 Σε ποιον ανήκει ο υπολογιστής που χρησιμοποιείτε εκτός εργασιακού χώρου (π.χ. σε εσάς, στον/στη σύζυγό σας/σύντροφό σας): _____

4.3 Παρακαλώ να προσδιορίσετε το είδος του υπολογιστή που χρησιμοποιείτε:

Desktop PC		Φορητό (Laptop)		Desktop Apple Mac	

4.4 Παρακαλώ να προσδιορίσετε πόσο συχνά χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός εργασιακού χώρου.

	Ποτέ	Περίπου μια ώρα το μήνα	Περίπου μια ώρα την εβδομάδα	Αρκετές ώρες την εβδομάδα	Περισσότερο από μια ώρα την ημέρα
Επεξεργαστής κειμένου	1	2	3	4	5
Λογιστικά φύλλα	1	2	3	4	5
Βάσεις δεδομένων	1	2	3	4	5
Επεξεργασία σελίδων (Desk-top publishing)	1	2	3	4	5
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής	1	2	3	4	5
CD-ROM	1	2	3	4	5
Ηλεκτρονικό ταχυδρομείο (E-mail)	1	2	3	4	5
Διαδίκτυο (Internet)	1	2	3	4	5
Παιχνίδια	1	2	3	4	5
Άλλο (παρακαλώ προσδιορίστε):	1	2	3	4	5

4.5 Παρακαλώ να προσδιορίσετε το χρονικό διάστημα που χρησιμοποιείτε υπολογιστές για προσωπικούς σκοπούς εκτός εργασιακού χώρου.

	Χρονική περίοδος (π.χ. 3 χρόνια και 2 μήνες)		**Χρονική περίοδος** (π.χ. 3 χρόνια και 2 μήνες)
Επεξεργαστής κειμένου		CD-ROM	
Λογιστικά φύλλα		Ηλεκτρονικό ταχυδρομείο (E-mail)	
Βάσεις δεδομένων		Διαδίκτυο (Internet)	
Επεξεργασία σελίδων (Desk-top publishing)		Παιχνίδια	
Λογισμικό επεξεργασίας γραφικών και ζωγραφικής		Άλλο (παρακαλώ προσδιορίστε):	

4.6 Έχετε πρόσβαση στο διαδίκτυο (Internet) εκτός εργασιακού χώρου;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΟΧΙ, παρακαλώ προχωρήστε στην ενότητα 5.

4.7 Διαθέτετε ηλεκτρονική διεύθυνση (E-mail address): ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 5. Εάν ΝΑΙ πόσο συχνά ελέγχετε τα ηλεκτρονικά σας μηνύματα (e-mail);

Ποτέ	**Μια φορά / δυο φορές το μήνα**	**Μια φορά την εβδομάδα**	**Κάθε δεύτερη μέρα**	**Κάθε μέρα**

5. Ενδο - εργασιακή επιμόρφωση / κατάρτιση

5.1 Παρακαλώ να προσδιορίσετε τον αριθμό κάθε είδους επαγγελματικής επιμόρφωσης/κατάρτισης που λάβατε στον τομέα των υπολογιστών στην εκπαίδευση (π.χ. 30 ώρες σε τμήμα αρχαρίων από το Πανεπιστήμιο).

Τόπος	**Σύνολο ωρών**				
	Τμήμα αρχαρίων	**Εξειδικευμένο τμήμα μικρής διάρκειας (π.χ. χρήση βάσης δεδομένων)**	**Τμήμα προχωρημένων**	**Συνέδριο εργασίας**	**Μακράς χρονικής διάρκειας τμήμα με απονομή πτυχίου**
Στο σχολείο					
Στο πανεπιστήμιο					
Στα ΠΕΚ					
Στο διαδίκτυο					
Σε ιδιωτικό οργανισμό					
Αλλού (παρακαλώ προσδιορίστε):					

6. Χρήση υπολογιστών στη εκπαιδευτική σας εργασία

6.1 Χρησιμοποιείτε ως σχολικός σύμβουλος υπολογιστές στην εκπαιδευτική σας εργασία; ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ, παρακαλώ πηγαίνετε στην ενότητα 7.

6.2 Παρακαλώ να προσδιορίσετε **πόσο συχνά χρησιμοποιείτε υπολογιστές** ως σχολικός σύμβουλος στην εκπαιδευτική εργασία σας.

Ποτέ	Μια φορά τον μήνα	Δύο φορές τον μήνα	Δύο φορές την εβδομάδα	Κάθε μέρα

6.3 Παρακαλώ να προσδιορίσετε το **χρονικό διάστημα που χρησιμοποιείτε** ως σχολικός σύμβουλος υπολογιστές κατά τη εκπαιδευτική σας εργασία. (π.χ. 3 χρόνια και 2 μήνες): _____

7. Υποστήριξη για τους υπολογιστές

7.1 Παρακαλώ να προσδιορίσετε το είδος και τον βαθμό της υποστήριξης που παρέχετε στα σχολεία που εποπτεύετε για την εξέλιξή τους ως προς την χρήση υπολογιστών στην εκπαίδευση. Παρακαλώ επιλέξτε έναν αριθμό σε κάθε πρόταση **(1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ).**

1 = καθόλου, 2 = λίγο, 3 = μέτρια, 4 = αρκετά, 5 = πολύ	
Τεχνικός εξοπλισμός	
Υποστήριξη για την απόκτηση και συντήρηση τεχνικού εξοπλισμού (σύγχρονος εξοπλισμός, δίκτυο, επισκευή και συντήρηση εξοπλισμού) για τη σχολική διαχείριση και διοίκηση.	
Υποστήριξη όσον αφορά στην απόκτηση τεχνικού εξοπλισμού για διδακτικούς σκοπούς.	
Λογισμικό	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διδακτικούς σκοπούς.	
Υποστήριξη όσον αφορά στην απόκτηση νέου λογισμικού για διαχείριση και διοίκηση.	
Οργάνωση/διοίκηση	
Οργάνωση και διαχείριση (συμπεριλαμβανομένου προγραμματισμού) των πηγών του υπολογιστή.	
Τεχνική υποστήριξη σε δασκάλους και διευθυντές.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους δασκάλους.	
Χρήση των υπολογιστών εκτός σχολικού προγράμματος από τους μαθητές.	
Χρήση ευκολιών των υπολογιστών για την εκπαίδευση του προσωπικού εκτός σχολικού προγράμματος.	
Πρόσβαση στο διαδίκτυο, παροχή και υποστήριξη.	
Δημιουργία εργαστηρίων πληροφορικής.	
Υποστήριξη για την σύνδεση με το διαδίκτυο.	
Υποστήριξη για την δημιουργία ιστοσελίδας.	
Επιμόρφωση	
Παροχή επιμορφωτικών δυνατοτήτων για δασκάλους.	
Παροχή επιμορφωτικών δυνατοτήτων για διευθυντές.	
Εφαρμογές αναλυτικού προγράμματος	
Πώς οι δάσκαλοι να χρησιμοποιούν τους υπολογιστές στην διδασκαλία τους.	
Πώς οι δάσκαλοι να χρησιμοποιούν υπολογιστές σε συγκεκριμένα μαθήματα.	
Πώς οι δάσκαλοι να οργανώνουν τους μαθητές στην τάξη.	
Πώς οι δάσκαλοι να ενσωματώνουν την χρήση του διαδικτύου (Internet) στην διδασκαλία τους.	
Άλλο (παρακαλώ προσδιορίστε):	

7.2 Αναλαμβάνετε / διεξάγετε προγράμματα προς βοήθεια των σχολείων στη χρήση υπολογιστών, επιχορηγούμενα από την περιφέρεια, το Υπουργείο Παιδείας, Πανεπιστήμια, την Ευρωπαϊκή Ένωση, γονείς ή άλλο οργανισμό;

ΝΑΙ ☐ ΟΧΙ ☐

Εάν απαντήσατε ΟΧΙ, παρακαλώ προχωρήστε στην ερώτηση 7.3. Εάν απαντήσατε ΝΑΙ παρακαλώ προσδιορίστε τα προγράμματα που συμμετείχατε κατά τα τελευταία 5 χρόνια.

Όνομα προγράμματος και χρονική του διάρκεια	Σκοπός του προγράμματος	Επιχορηγού-μενο από:	Ηλικίες μαθητών	Αριθμός σχολείων

7.3 Ακολουθείτε κάποια πολιτική ως προς την εισαγωγή υπολογιστών σε σχολεία της περιφέρειάς σας που δεν χρησιμοποιούν;

ΝΑΙ ☐ ΟΧΙ ☐

Αν ΝΑΙ αναπτύξτε σύντομα την πολιτική σας. Αν ΟΧΙ, παρακαλώ παραθέστε τους λόγους: _____

_____

_____

7.4 Έχετε οργανώσει ποτέ επιμορφωτικά προγράμματα και σεμινάρια σχετικά με τους υπολογιστές στην εκπαίδευση για δασκάλους στα σχολεία της περιφέρειάς σας:

ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΝΑΙ, περιγράψτε εν συντομία μερικά από αυτά τα προγράμματα και τον στόχο τους: _____

_____

_____

7.5 Έχετε ενθαρρύνει δασκάλους στην περιφέρειά σας να παρακολουθήσουν επιμορφωτικά τμήματα, σεμινάρια σχετικά με τους υπολογιστές στην εκπαίδευση;

ΝΑΙ ☐ ΟΧΙ ☐ Εάν ΝΑΙ, παρακαλώ προσδιορίστε. _____

_____

_____

7.6 Κατά τις επισκέψεις σας σε σχολεία και συναντήσεις με δασκάλους, ζήτησαν ποτέ τη δική σας βοήθεια και υποστήριξη σχετικά με τους υπολογιστές στην τάξη;

ΝΑΙ ☐ ΟΧΙ ☐

Εάν ΝΑΙ, τι είδους προβλήματα ήταν αυτά και σε τι ενέργειες προβήκατε για να τους βοηθήσετε:

_____

_____

_____

Παρακαλώ γράψτε εν συντομία τι σημαίνει για σας ο όρος Τεχνολογίες της Πληροφορίας και της Επικοινωνίας (ΤΠΕ):

_____
_____
_____
_____

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν κατά πόσο σκοπεύετε να υποστηρίξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προτίθεμαι να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

εντελώς απίθανο	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	πολύ πιθανο

2. Θα προσπαθήσω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	απόλυτα αναληθές

3. Σχεδιάζω να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ εντελώς	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	συμφωνώ απόλυτα

4. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών είναι για μένα:

επιβλαβής	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	ευεργετική
ευχάριστη	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δυσάρεστη
καλή	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	κακή
μάταια	:__ 1	:__ 2	:__ 3	:__ 4	:__ 5	:__ 6	:__ 7	αξιόλογη
διασκεδαστική	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	βαρετή

5. Η πλειοψηφία των πιο σημαντικών για μένα ατόμων πιστεύουν ότι:

πρέπει	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	δεν πρεπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

6. Αναμένεται από μένα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

πολύ πιθανό	:__ 7	:__ 6	:__ 5	: 4	:__ 3	:__ 2	:__ 1	εντελώς απίθανο

7. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου θα

επιδοκιμάσουν	:__ 7	:__ 6	:__ 5	:__ 4	:__ 3	:__ 2	:__ 1	αποδοκιμάσουν

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

8 Η πλειοψηφία των πιο σημαντικών για μένα ατόμων υποστηρίζουν την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

9. Τα άτομα των οποίων τη γνώμη εκτιμώ στη ζωή μου

υποστηρίζουν	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν υποστηρίζουν

την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία.

10. Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα ήταν για μένα

απιθανη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	πιθανή

11. Εάν ήθελα θα μπορούσα εύκολα να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

απόλυτα αληθές	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	απόλυτα αναληθές

12. Πόσο πιστεύετε ότι μπορείτε να ελέγξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών.

καθόλου	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	απόλυτα

13. Εξαρτάται κυρίως από μένα εάν θα υποστηρίξω ή όχι την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

συμφωνώ απόλυτα	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	διαφωνώ κάθετα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πλεονεκτήματα και τα μειονεκτήματα της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών ...		
1	...θα εμπλουτίσει τις γνώσεις των μαθητών.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
2	...θα βοηθήσει τους αδύνατους μαθητές να βελτιωθούν.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
3	...θα βοηθησει τους μαθητές να μαθαίνουν πιο εύκολα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
4	...θα κάνει πιο ευχαριστο το μάθημα για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
5	...θα αυξήσει το ενδιαφέρον των μαθητών για μάθηση.	πολύ πιθανό: ___:___:___:___:___: :___εντελως απιθανο 7 6 5 4 3 2 1
6	...θα ενθαρρύνει τη δημιουργικότητα στους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελως απιθανο 7 6 5 4 3 2 1
7	...θα βελτιωσει σημαντικά τη συνολική ποιότητα της εκπαίδευσης των μαθητών.	πολύ πιθανο: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
8	...θα είναι χάσιμο χρόνου για τους μαθητές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελως απιθανο 7 6 5 4 3 2 1
9	...θα βοηθήσει τους μαθητές στη μεταξυ τους συνεργασία.	πολύ πιθανό: ___:___:___:___:___:___:___εντελως απίθανο 7 6 5 4 3 2 1

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών ...		
10	...θα βοηθήσει τους μαθητές να βρουν ευκολότερα δουλειά στο μέλλον.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
11	...θα βοηθήσει τους δασκάλους να βελτιώσουν τις γνώσεις τους στους υπολογιστές.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
12	...θα επιτρέψει στους δασκάλους να έχουν μεγαλύτερη πρόσβαση στον υπολογιστή για προσωπική και επαγγελματική χρήση.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
13	...θα κάνει τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελως απίθανο 7 6 5 4 3 2 1
14	...θα κάνει τα μαθήματα πιο ευχάριστα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
15	...θα κάνει τα μαθήματα περισσότερο ποικίλα.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
16	...θα κάνει την προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
17	...θα βοηθήσει τους δασκάλους να οργανώσουν καλύτερα τα μαθήματά τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
18	...θα κάνει την προετοιμασία των μαθημάτων περισσότερο χρονοβόρα για τους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
19	...θα περιορίσει το περιεχόμενο διδασκαλίας των μαθημάτων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απιθανο 7 6 5 4 3 2 1
20	...θα κάνει πιο δύσκολο τον έλεγχο της τάξης.	πολύ πιθανό: ___:___:___:___:___: εντελώς απίθανο 7 6 5 4 3 2 1
21	...θα προσδώσει μεγαλύτερο κύρος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
22	...θα βελτιώσει την παραγωγικότητα των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
23	...θα δημιουργήσει διαμάχες μεταξύ των δασκάλων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
24	...θα περιορίσει τον ρόλο των δασκάλων.	πολύ πιθανό: ___:___:___: :___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
25	...θα βοηθήσει τους δασκάλους να επικοινωνήσουν με συναδέλφους άλλων σχολείων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελως απιθανο 7 6 5 4 3 2 1
26	...θα "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
27	...θα δημιουργήσει άγχος στους δασκάλους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
28	...θα βελτιώσει την επικοινωνία ανάμεσα στους δασκάλους και τους μαθητές τους.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
29	...θα δημιουργήσει προβλήματα στο υπάρχον αναλυτικό πρόγραμμα.	πολύ πιθανο: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
30	...θα δημιουργήσει προβλήματα στο ωρολόγιο πρόγραμμα των σχολείων.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
31	...θα υποστηρίξει την επικοινωνία των σχολείων μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό.	πολύ πιθανό: ___:___:___:___:___:___: εντελώς απίθανο 7 6 5 4 3 2 1
32	...θα βοηθήσει στην καλύτερη οργάνωση των σχολείων μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
33	...θα βοηθήσει να συνεργαστεί όλο το προσωπικό των σχολείων μου.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
34	...θα βοηθησει τα σχολεία μου να εφαρμόσουν άλλες καινοτομίες.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1

Η υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στο σχολείο μου κατά την διάρκεια των επόμενων τριών μηνών ...		
35	...θα μου προσδώσει μεγαλύτερο κύρος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1
36	...θα μου αυξήσει το άγχος.	πολύ πιθανό: ___:___:___:___:___:___:___εντελώς απίθανο 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες αξιολογούν τα ανωτέρω πλεονεκτήματα και μειονεκτήματα της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1	Ο εμπλουτισμός των γνώσεων των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
2	Το να βοηθήσω τους αδύνατους μαθητές να βελτιωθούν είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
3	Το να βοηθήσω τους μαθητές να μαθαίνουν πιο εύκολα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ : εξαιρετικά κακό 7 6 5 4 3 2 1
4	Το να γίνει το μάθημα πιο ευχάριστο για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
5	Το να αυξηθεί το ενδιαφέρον των μαθητών για μάθηση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
6	Το να ενθαρρύνω τη δημιουργικότητα των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
7	Το να βελτιώσω τη συνολική ποιότητα της εκπαίδευσης των μαθητών είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
8	Το χάσιμο του χρόνου για τους μαθητές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
9	Το να βοηθήσω τους μαθητές στη μεταξύ τους συνεργασία είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
10	Το να βοηθήσω τους μαθητές να βρουν πιο εύκολα δουλειά στο μέλλον είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
11	Η βελτίωση των γνώσεων των δασκάλων στους υπολογιστές είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
12	Το να έχουν οι δάσκαλοι μεγαλύτερη πρόσβαση στους υπολογιστές για προσωπική και επαγγελματική χρήση είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
13	Το να γίνουν τα μαθήματα πιο ενδιαφέροντα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
14	Το να είναι τα μαθήματα πιο διασκεδαστικά για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
15	Το να είναι τα μαθήματα περισσότερο ποικίλα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
16	Το να γίνει η προετοιμασία των μαθημάτων πιο εύκολη για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
17	Το να οργανώσουν καλύτερα τα μαθήματα οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
18	Το να γίνει η προετοιμασία των μαθημάτων περισσότερο χρονοβόρα για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
19	Το να περιοριστεί το περιεχόμενο διδασκαλίας των μαθημάτων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1

20	Το να είναι ο έλεγχος της τάξης πιο δύσκολος για τους δασκάλους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
21	Το να έχουν περισσότερο κύρος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
22	Το να βελτιωσουν οι δάσκαλοι την παραγωγικότητά τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
23	Το να έχουν διαμάχες οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
24	Ο περιορισμός του ρόλου των δασκάλων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
25	Η επικοινωνία των δασκάλων με συναδέλφους άλλων σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
26	Το να "γλιτώσουν" οι δάσκαλοι αρκετή ώρα και δουλειά είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικα κακό 7 6 5 4 3 2 1
27	Το να έχουν αγχος οι δάσκαλοι είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ : :___ εξαιρετικά κακό 7 6 5 4 3 2 1
28	Το να βελτιωθεί η επικοινωνία ανάμεσα στους δασκάλους και στους μαθητές τους είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
29	Η δημιουργία προβλημάτων στο υπάρχον αναλυτικό πρόγραμμα είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
30	Η δημιουργία προβλημάτων στο ωρολόγιο πρόγραμμα των σχολείων είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
31	Το να υποστηριχθεί η επικοινωνία των σχολείων μου με άλλα σχολεία στην Ελλάδα και στο εξωτερικό είναι:	εξαιρετικα καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακο 7 6 5 4 3 2 1
32	Το να βοηθηθεί η καλύτερη οργάνωση των σχολείων μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
33	Το να βοηθηθεί η συνεργασία του προσωπικού των σχολείων μου είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
34	Το να βοηθηθούν τα σχολεία μου να εφαρμόσουν άλλες καινοτομίες είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
35	Το να έχω μεγαλύτερο κύρος είναι:	εξαιρετικά καλό :___: ___ :___ :___ :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1
36	Το να αυξηθεί το άγχος μου είναι:	εξαιρετικά καλό :___: ___ :___ : :___ :___ :___ εξαιρετικά κακό 7 6 5 4 3 2 1

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τα πιθανά πρόσωπα που μπορεί να επιδοκιμάσουν ή να αποδοκιμάσουν την πρόθεσή σας για υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει το μικρότερο βαθμό προτίμησης ενώ ο αριθμός 7 δηλώνει το μεγαλύτερο βαθμό προτίμησης. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Ο προϊστάμενος γραφείου της περιοχής μου πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	: 1	δεν πρεπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

2. Ο σχολικοί σύμβουλοι άλλων περιοχών πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	: 3	:___ 2	: 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

3. Οι σύλλογοι γονέων και κηδεμόνων πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

4. Οι μαθητές των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	: 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

5. Οι διευθυντές των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

6. Οι δάσκαλοι των σχολείων μου πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

7. Το Υπουργείο Παιδείας πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

8. Τα πανεπιστήμια πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρεπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

9. Οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

10. Η τοπική αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

11. Η Διδασκαλική Ομοσπονδία Ελλάδος πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

12. Το Παιδαγωγικό Ινστιτούτο πιστεύει ότι

πρέπει	:___ 7	:___ 6	:___ 5	:___ 4	:___ 3	:___ 2	:___ 1	δεν πρέπει

να υποστηρίξω την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

Μιλώντας γενικά, πόσο θέλετε να κάνετε αυτό που...		
1	...ο προϊστάμενος γραφείου της περιοχης σας πιστεύει ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
2	...οι σχολικοί σύμβουλοι άλλων περιοχών πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
3	...οι σύλλογοι γονέων και κηδεμόνων πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
4	...οι μαθητές των σχολείων σας πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
5	...οι διευθυντές των σχολείων σας πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ : :___ :___ πάρα πολύ 1 2 3 4 5 6 7
6	...οι δάσκαλοι των σχολείων σας πιστεύουν ότι πρέπει να κάνετε;	καθολου :___: ___ :___ :___ : :___ :___ πάρα πολύ 1 2 3 4 5 6 7
7	...το Υπουργείο Παιδείας πιστεύει ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
8	...τα πανεπιστήμια πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
9	...οι ιδιωτικές εταιρείες πληροφορικής πιστεύουν ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
10	...η Τοπική Αυτοδιοίκηση (Δήμος, Νομαρχία) πιστεύει ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
11	...η Διδασκαλική Ομοσπονδία Ελλάδας πιστεύει ότι πρέπει να κάνετε;	καθόλου :___: ___ : :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7
12	...το Παιδαγωγικό Ινστιτούτο πιστευει ότι πρέπει να κάνετε;	καθολου :___: ___ :___ :___ : :___ :___ πάρα πολύ 1 2 3 4 5 6 7
13	...ο προϊστάμενος διεύθυνσης πιστεύει ότι πρέπει να κάνετε;	καθόλου :___: ___ :___ :___ :___ :___ :___ πάρα πολύ 1 2 3 4 5 6 7

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν στην υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Σε κάθε πρόταση υπάρχει μια επτάβαθμη κλίμακα (1 έως 7), όπου ο αριθμός 1 δηλώνει την απόλυτη διαφωνία ενώ ο αριθμός 7 δηλώνει την απόλυτη συμφωνία. Σας παρακαλούμε, σε κάθε πρόταση να επιλέξετε τον αριθμό που σας αντιπροσωπεύει.

1. Προσδοκώ ότι επαρκής αριθμός υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) θα υπάρχει στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

2. Προσδοκώ ότι θα υπάρχει στα σχολεία της περιοχής μου αρκετό εκπαιδευτικό λογισμικό για εκπαιδευτικούς σκοπούς κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

3. Προσδοκώ ότι τεχνική βοήθεια για την λειτουργία και διατήρηση των υπολογιστών θα υπάρχει στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

4. Προσδοκώ ότι θα υπάρχει επαρκής οικονομική στήριξη για τους δασκάλους των σχολείων της περιοχής μου αλλά και για μένα κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ καθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

5. Προσδοκώ ότι θα υπάρχει κατάλληλο εργαστήριο υπολογιστών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

6. Προσδοκώ ότι θα υπάρχει μικρός αριθμός μαθητών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

7. Προσδοκώ ότι θα προγραμματιστεί στα σχολεία της περιοχής μου αρκετός χρόνος για την χρήση υπολογιστών ανά τάξη κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

8. Προσδοκώ ότι η χρήση των υπολογιστών θα ενσωματωθεί στο ισχύον Αναλυτικό Πρόγραμμα στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	: 7	συμφωνώ απόλυτα

9. Προσδοκώ ότι οι δάσκαλοι θα έχουν αρκετό χρόνο για να αναπτύξουν τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

10. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους δασκάλους κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

11. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τον προϊστάμενο γραφείου κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

12. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από σχολικούς συμβούλους άλλων περιοχών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

13. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους διευθυντές κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	: 6	: 7	συμφωνώ απόλυτα

14. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από τους συλλόγους γονέων και κηδεμόνων κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	: 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

15. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από το Υπουργείο Παιδείας κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

16. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από το Παιδαγωγικό Ινστιτούτο κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	: 3	: 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

17. Προσδοκώ ότι θα υπάρχει υποστήριξη στα σχολεία της περιοχής μου από την τοπική αυτοδιοίκηση (Δήμος. Νομαρχία) κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

18. Προσδοκώ ότι οι μαθητές θα θέλουν να χρησιμοποιήσουν υπολογιστές στα σχολεία της περιοχής μου κατά την διάρκεια της τρέχουσας σχολικής χρονιάς.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

19. Προσδοκώ ότι θα υπάρχει συνεχής σύνδεση στο διαδίκτυο στα σχολεία της περιοχής μου κατά την διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απόλυτα

20. Προσδοκώ ότι θα υπάρχουν στα σχολεία της περιοχής μου επαρκείς δυνατότητες επιμόρφωσης των εκπαιδευτικών στην παιδαγωγική χρήση των υπολογιστών κατά τη διάρκεια των επόμενων τριών μηνών.

διαφωνώ κάθετα	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	συμφωνώ απολυτα

Στη συνέχεια, διατυπώνονται ορισμένες προτάσεις οι οποίες δηλώνουν τους παράγοντες που θα σας διευκολύνουν ή θα σας δυσκολέψουν το να υποστηρίξετε την εισαγωγή και εφαρμογή των ΤΠΕ στα σχολεία της περιοχής σας κατά τη διάρκεια των επόμενων τριών μηνών. Παρακαλώ σε κάθε πρόταση να επιλέξετε έναν αριθμό που να αντιπροσωπεύει την απάντησή σας.

1. Η ύπαρξη επαρκούς αριθμού υπολογιστών και περιφερειακών (π.χ. εκτυπωτές) στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

2. Η ύπαρξη αρκετού εκπαιδευτικού λογισμικού για εκπαιδευτικούς σκοπούς στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

3. Το να υπάρχει τεχνική βοήθεια για την λειτουργία και συντήρηση των υπολογιστών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

4. Επαρκής οικονομική στήριξη για τους δασκάλους στα σχολεία της περιοχής μου αλλά και για μένα κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστηριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

5. Ένα κατάλληλο εργαστήριο πληροφορικής στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

6. Ο μικρός αριθμός μαθητών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

7. Το να προγραμματιστεί αρκετός χρόνος για χρήση υπολογιστών ανά τάξη στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

8. Η ενσωμάτωση της χρήσης των υπολογιστών στο ισχύον Αναλυτικό Πρόγραμμα στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	: 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

9. Η ύπαρξη αρκετού χρόνου για να αναπτύξουν οι δάσκαλοι τα μαθήματα στα οποία χρησιμοποιούνται οι υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

10. Η υποστήριξη των δασκάλων των σχολείων της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

11. Η υποστήριξη του προϊστάμενου γραφείου στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

12. Η υποστήριξη του προϊσταμένου διεύθυνσης στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

13. Η υποστήριξη των διευθυντών στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

14. Η υποστήριξη των συλλόγου γονέων και κηδεμόνων στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

15. Η υποστήριξη του Υπουργείου Παιδείας στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

16. Η υποστήριξη του Παιδαγωγικού Ινστιτούτου στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

17. Η υποστήριξη της τοπικής αυτοδιοίκησης (Δήμος, Νομαρχία) στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο ευκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

18. Το να θέλουν οι μαθητές μου να χρησιμοποιήσουν υπολογιστές στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

19. Η ύπαρξη συνεχούς σύνδεσης στο διαδίκτυο στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δύσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσοτερο εύκολη

για μενα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

20. Το να υπάρχουν επαρκείς δυνατότητες επιμόρφωσης στην παιδαγωγική χρήση των υπολογιστών για τους δασκάλους στα σχολεία της περιοχής μου κατά τη διάρκεια των επόμενων τριών μηνών θα κάνει

περισσότερο δυσκολη	:___ 1	:___ 2	:___ 3	:___ 4	:___ 5	:___ 6	:___ 7	περισσότερο εύκολη

για μένα την υποστήριξη της εισαγωγής και εφαρμογής των ΤΠΕ.

Μέρος 3ο

Στη συνέχεια του ερωτηματολογίου υπάρχουν κάποιες στάσεις απέναντι στους υπολογιστές. Παρακαλώ, κυκλώστε ένα αριθμό σε κάθε πρόταση, δηλώνοντας την απάντηση που σας αντιπροσωπεύει.

1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*		*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
1	Έχω κουραστεί να χρησιμοποιώ υπολογιστή.	1	2	3	4	5
2	Οι υπολογιστές δεν είναι συναρπαστικοί.	1	2	3	4	5
3	Αν μου δινοταν η ευκαιρία, θα ήθελα να μάθω για τους υπολογιστές και τη χρήση τους.	1	2	3	4	5
4	Νομίζω ότι οι υπολογιστές είναι πολύ εύκολοι στη χρήση τους.	1	2	3	4	5
5	Οι υπολογιστές θα μπορούσαν να βοηθήσουν στην ενισχυτική διδασκαλία.	1	2	3	4	5
6	Θα εργαστώ με υπολογιστή όσο το δυνατόν λιγότερο.	1	2	3	4	5
7	Τα επιμορφωτικά προγράμματα για τους υπολογιστές στο χώρο εργασίας πρέπει να γίνουν υποχρεωτικά.	1	2	3	4	5
8	Η χρηση υπολογιστή στην τάξη οδηγεί σε αυξημένη απόδοση των μαθητών.	1	2	3	4	5
9	Συγκεντρώνομαι στον υπολογιστή, όταν τον χρησιμοποιώ.	1	2	3	4	5
10	Νομίζω ότι η εργασία με υπολογιστές θα ήταν ευχάριστη και ενδιαφέρουσα.	1	2	3	4	5
11	Θα ήθελα να συμμετάσχω σε μάθημα πληροφορικης για να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
12	Θα δούλευα πιο εντατικά αν είχα τη δυνατοτητα να χρησιμοποιώ υπολογιστές συχνότερα.	1	2	3	4	5
13	Μερικές φορές φοβάμαι όταν πρέπει να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
14	Η πρόκληση να λύνω προβλήματα με υπολογιστή δεν με ελκύει.	1	2	3	4	5
15	Οι υπολογιστές βλάπτουν τις σχέσεις μεταξύ των ανθρώπων.	1	2	3	4	5
16	Νιώθω άνετα όταν εργάζομαι με υπολογιστή.	1	2	3	4	5
17	Είμαι βέβαιος/-η ότι θα μπορούσα να εργαστώ με υπολογιστές.	1	2	3	4	5
18	Η εργασία με υπολογιστές στην τάξη διαστρεβλώνει το κοινωνικό κλίμα.	1	2	3	4	5
19	Αν προεκυπτε πρόβλημα με κάποιο πρόγραμμα του υπολογιστή που δεν μπορώ να λύσω άμεσα, θα επέμεινα σε αυτό μέχρι να βρω την λύση.	1	2	3	4	5
20	Μου αρέσει να ασχολούμαι με έναν υπολογιστή.	1	2	3	4	5
21	Οι υπολογιστές με κάνουν να νιώθω αμήχανος/-η και μπερδεμένος/-η.	1	2	3	4	5
22	Είμαι βέβαιος ότι θα μπορούσα να μάθω μια γλώσσα προγραμματισμού (για τον υπολογιστή).	1	2	3	4	5
23	Οι μαθητές προσέχουν περισσότερο όταν στην τάξη χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
24	Ξέρω ότι οι υπολογιστές μου δίνουν την ευκαιρία να μάθω νέα πράγματα.	1	2	3	4	5
25	Η χρήση των υπολογιστών είναι δύσκολη.	1	2	3	4	5
26	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) αυξάνει τα κίνητρα στους μαθητές για το μάθημα.	1	2	3	4	5
27	Θα χρησιμοποιήσω τους υπολογιστές με πολλούς τροπους στη ζωή μου.	1	2	3	4	5
28	Δεν μπορώ να σκεφτώ κανένα τρόπο που θα χρησιμοποιήσω υπολογιστή στην καριέρα μου.	1	2	3	4	5
29	Πρέπει να είσαι "μυαλό" για να εργάζεσαι με υπολογιστές.	1	2	3	4	5
30	Η εκμάθηση των υπολογιστών είναι χασιμο χρόνου.	1	2	3	4	5
31	Οι υπολογιστές στο σχολείο εξαίρουν τη δημιουργικότητα των μαθητών.	1	2	3	4	5
32	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές.	1	2	3	4	5
33	Προσπαθώ να ενημερωνομαι για τις τεχνολογικές εξελίξεις.	1	2	3	4	5
34	Δεν μου αρέσει να συζητώ με άλλους για υπολογιστές.	1	2	3	4	5
35	Οι υπολογιστές συντελούν στην πιο αποδοτική διδασκαλια.	1	2	3	4	5

	1 = Διαφωνώ κάθετα, *2 = Διαφωνώ,* *3 = Είμαι ουδέτερος/-η,* *4 = Συμφωνώ,* *5 = Συμφωνώ απόλυτα*	*Διαφωνώ κάθετα*	*Διαφωνώ*	*Είμαι ουδέτερος/-η*	*Συμφωνώ*	*Συμφωνώ απόλυτα*
36	Οι υπολογιστές δεν με φοβίζουν καθόλου.	1	2	3	4	5
37	Η χρήση ενός υπολογιστή με εμποδίζει να είμαι δημιουργικός/-ή.	1	2	3	4	5
38	Οι επιδόσεις των μαθητών μπορούν να αυξηθούν όταν στη διδασκαλία χρησιμοποιούνται υπολογιστές.	1	2	3	4	5
39	Θα ήθελα να μάθω περισσότερα για τους υπολογιστές ως ενισχυτικά μέσα διδασκαλίας.	1	2	3	4	5
40	Θα μου άρεσε να εργάζομαι με υπολογιστές.	1	2	3	4	5
41	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μάθημα πιο ενδιαφέρον.	1	2	3	4	5
42	Δεν με πειράζει να μάθω για τους υπολογιστές.	1	2	3	4	5
43	Η εργασία με υπολογιστή με κάνει νευρικό/-ή.	1	2	3	4	5
44	Οι υπολογιστές είναι πολυτιμα εργαλεία για τη βελτίωση της ποιότητας της εκπαίδευσης των μαθητών.	1	2	3	4	5
45	Πιθανώς δεν θα μάθω ποτέ να χρησιμοποιώ υπολογιστές.	1	2	3	4	5
46	Οι κοινωνικές επαφές επηρεάζονται αρνητικά από τη χρηση των υπολογιστών.	1	2	3	4	5
47	Οι υπολογιστές μπορούν να χρησιμοποιηθούν με επιτυχία σε μαθήματα που απαιτούν δημιουργικές δραστηριότητες.	1	2	3	4	5
48	Είναι ενδιαφέρον να μαθαίνει κανείς για υπολογιστές.	1	2	3	4	5
49	Διστάζω να χρησιμοποιήσω υπολογιστές από φόβο ότι θα κάνω λάθη που δεν μπορώ να διορθώσω.	1	2	3	4	5
50	Τα άτομα που εργάζονται με υπολογιστές κάθονται μπροστά σε μια οθόνη όλη την ημέρα.	1	2	3	4	5
51	Εχω πολλή αυτοπεποιθηση όσον αφορά την εργασία με υπολογιστές.	1	2	3	4	5
52	Οι υπολογιστές θα βοηθούσαν τους μαθητές να συνεργάζονται μεταξύ τους.	1	2	3	4	5
53	Πιστεύω ότι είναι πολύ σημαντικό για μένα να μαθω να χειρίζομαι έναν υπολογιστή.	1	2	3	4	5
54	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) κάνει το μαθητή να νιώθει ότι συμμετέχει περισσότερο.	1	2	3	4	5
55	Η πρόκληση της μάθησης με υπολογιστές με συναρπάζει.	1	2	3	4	5
56	Δεν θα δεχόμουν ποτέ μια δουλειά, όπου θα έπρεπε να εργάζομαι με υπολογιστές.	1	2	3	4	5
57	Απογοητεύομαι όταν σκέπτομαι ότι προσπαθώ να χρησιμοποιήσω υπολογιστές.	1	2	3	4	5
58	Οι υπολογιστές μπορούν να είναι χρήσιμο βοηθημα διδασκαλίας σε όλα σχεδόν μαθήματα.	1	2	3	4	5
59	Δεν νομίζω ότι θα έκανα υψηλού επιπέδου εργασίες με τους υπολογιστές.	1	2	3	4	5
60	Θα ήθελα να περνάω περισσότερη ώρα χρησιμοποιωντας υπολογιστές.	1	2	3	4	5
61	Νιώθω άνετα όταν έχω γύρω μου υπολογιστές.	1	2	3	4	5
62	Η χρήση του ηλεκτρονικού ταχυδρομείου (e-mail) βοηθάει το μαθητη να μάθει περισσότερα.	1	2	3	4	5

Σας ευχαριστώ πολύ για την συνεργασία σας
Γεώργιος, Ι. Κουτρομάνος, Υποψήφιος Διδάκτορας
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APPENDIX E: QUESTIONS USED IN THE PILOT STUDY (THEORY OF REASONED ACTION AND PLANNED BEHAVIOUR)

TEACHER'S QUESTIONNAIRE OF THE THEORY OF REASONED ACTION AND THEORY OF PLANNED BEHAVIOUR (PILOT STUDY)

Behavioural beliefs

1. What do you believe are the advantages of your using ICT in your teaching during the next three months?

2. What do you believe are the disadvantages of your using ICT in your teaching during the next three months?

3. Is there anything else you associate with your using ICT in your teaching during the next three months?

Normative beliefs

4. Are there any individuals or groups who would approve your using ICT in your teaching during the next three months?

5. Are there any individuals or groups who would disapprove your using ICT in your teaching during the next three months?

6. Are there any other individuals or groups who come to mind when you think about using ICT in your teaching during the next three months?

Control beliefs

7. What factors or circumstances make it easier for you to use ICT in your teaching during the next three months?

8. What factors or circumstances make it more difficult for you to use ICT in your teaching during the next three months?

9. Are there any other issues that come to mind when you think about using ICT in your teaching during the next three months?

HEAD TEACHER'S QUESTIONNAIRE OF THE THEORY OF REASONED ACTION AND THEORY OF PLANNED BEHAVIOUR (PILOT STUDY)

Behavioural beliefs

1. What do you believe are the advantages of your supporting the uptake of ICT in your school during the next three months?

2. What do you believe are the disadvantages of your supporting the uptake of ICT in your school during the next three months?

3. Is there anything else you associate with your supporting the uptake of ICT in your school during the next three months?

Normative beliefs

4. Are there any individuals or groups who would approve your supporting the uptake of ICT in your school during the next three months?

5. Are there any individuals or groups who would disapprove your supporting the uptake of ICT in your school during the next three months?

6. Are there any other individuals or groups who come to mind when you think about supporting the uptake of ICT in your school during the next three months?

Control beliefs

7. What factors or circumstances make it easier for you to support the uptake of ICT in your school during the next three months?

8. What factors or circumstances make it more difficult for you to support the uptake of ICT in your school during the next three months?

9. Are there any other issues that come to mind when you think about supporting the uptake of ICT in your school during the next three months?

DISTRICT OFFICER'S AND SCHOOL CONSELLOR'S QUESTIONNAIRE OF THE THEORY OF REASONED ACTION AND PLANNED BEHAVIOUR (PILOT STUDY)

Behavioural beliefs

1. What do you believe are the advantages of your supporting the uptake of ICT in schools of your district during the next three months?

2. What do you believe are the disadvantages of your supporting the uptake of ICT in schools of your district during the next three months?

3. Is there anything else you associate with your supporting the uptake of ICT in schools of your district during the next three months?

Normative beliefs

4. Are there any individuals or groups who would approve your supporting the uptake of ICT in schools of your district during the next three months?

5. Are there any individuals or groups who would disapprove your supporting the uptake of ICT in schools of your district during the next three months?

6. Are there any other individuals or groups who come to mind when you think about supporting the uptake of ICT in schools of your district during the next three months?

Control beliefs

7. What factors or circumstances make it easier for you to support the uptake of ICT in schools of your district during the next three months?

8. What factors or circumstances make it more difficult for you to support the uptake of ICT in schools of your district during the next three months?

9. Are there any other issues that come to mind when you think about supporting the uptake of ICT in schools of your district during the next three months?

APPENDIX F: INTERVIEWS' QUESTIONS

Schedule A: Teachers' interviews

1. When did you start using ICT in your teaching?
2. Why did you decide to use ICT in your teaching?
3. Was there any person who motivated you to use ICT in your teaching? If yes, who?
4. What kind of support did your head teacher provide you for introduction of ICT in your teaching?
5. What kind of support did your district officer provide you for introduction of ICT in your teaching?
6. What kind of support did your school counsellor provide you for introduction of ICT in your teaching?
7. What kind of training have you had in ICT for your teaching? Who helped you towards this training?
8. In which class do you use ICT in your teaching?
    - In which subjects?
    - How often?
    - What kind of educational software is used?
    - How is ICT used in your class? Please give an example.
9. What do you believe are the advantages of your using ICT in your teaching?
10. What do you believe are the disadvantages of your using ICT in your teaching?
11. What do you believe are the opinions of your head teacher towards the uptake of ICT in your school?
12. What kind of support does your head teacher provide you for using ICT in your teaching?
13. What do you believe are the opinions of your school counsellor towards the uptake of ICT in your school?
14. What kind of support does your school counsellor provide you for using ICT in your teaching?
15. What do you believe are the opinions of your district officer towards the uptake of ICT in your school?
16. What kind of support does your district officer provides to you for using ICT in your teaching?
17. Which are the problems you face in using ICT in your teaching?
18. What kind of support are you expecting from your head teacher in order to use ICT better in your teaching next year?
19. What kind of support are you expecting from your school counsellor in order to use ICT better in your teaching next year?
20. What kind of support are you expecting from your district officer in order to use ICT better in your teaching next year?
21. Do you have any further comments?

Schedule B: Head teachers' interviews

1. Why did your school decide to introduce ICT for administrative and teaching purposes?
2. Has your school been running projects to help teachers and pupils using computers in their teaching? If yes, please indicate the projects your school has been involved during the last 5 years and their aims.

3. Who motivated your school to introduce ICT for administrative and teaching purposes?
4. What kind of support did you provide to your school for the introduction of ICT for administrative and teaching purposes?
5. What kind of support did your district officer provide to your school for the introduction of ICT for administrative and teaching purposes?
6. What kind of support did your school counsellor provide to your school for the introduction of ICT for administrative and teaching purposes?
7. Which problems arose during the introduction of ICT for administrative and teaching purposes in your school?
8. How many computers are available in your school for teaching and administrative purposes?
    - How were they obtained?
    - When were they obtained?
    - What are their technical characteristics?
9. How many of the teachers of your school are using computers in their teaching?
    - In which classes?
    - How often do they use computers in their teaching?
    - In which subjects is ICT used?
    - What kind of educational software is used?
    - How is ICT used in teaching? Please give an example.
10. What are the reasons that these teachers use ICT in their teaching?
11. What are the reasons that the rest of teaching staff do not use ICT in their teaching?
12. Which are the problems, your school faces in using ICT for teaching and administrative purposes?
13. What kind of support do you provide teachers for using ICT in their teaching?
14. What do you believe are the advantages of your supporting the uptake of ICT in your school?
15. What do you believe are the disadvantages of your supporting the uptake of ICT in your school?
16. What kind of support does your district officer provide for the using of ICT in your school for administrative and teaching purposes?
17. What do you believe are the opinions of your district officer towards the uptake of ICT in your school?
18. What kind of support does your school counsellor provide for the using of ICT in your school for administrative and teaching purposes?
19. What do you believe are the opinions of your school counsellor towards the uptake of ICT in your school?
20. What kind of support do you believe from your district officer would be helpful for the better use of ICT in your school?
21. What kind of support do you believe from your school counsellor would be helpful for the better use of ICT in your school?

22. What is the policy of your school towards the using of ICT for administrative and teaching purposes for next school year?

23. Do you have any further comments?

Schedule C: School counsellors' interviews

1. Why did some of your schools decide to introduce ICT for administrative and teaching purposes?

2. Has your district been running projects to help teachers and pupils using computers in their teaching? If yes, please indicate the projects your district has been involved during the last 5 years and their aims.

3. Who motivated your schools to introduce ICT for administrative and teaching purposes?

4. What kind of support did you provide to your schools for the introduction of ICT for administrative and teaching purposes?

5. What kind of support did your district officer provide to your schools for the introduction of ICT for administrative and teaching purposes?

6. Which problems arose during the introduction of ICT for administrative and teaching purposes in your schools?

7. How is ICT used in your schools? Please give an example.

   - In which classes is ICT used?
   - How often is ICT used?
   - In which subjects is ICT used?
   - What kind of educational software is used?

8. What are the reasons that only a number of teachers use ICT in their teaching?

9. Which are the problems your schools face in using ICT for administrative and teaching purposes?

10. What kind of support do you provide teachers for using ICT in their teaching?

11. What kind of support do you provide head teachers in schools where ICT is used for administrative and teaching purposes?

12. Have you organized any training programmes and seminars about computers in education for teachers in the schools in your district? If yes, describe in brief some of these programmes and seminars and their aim.

13. What do you believe are the advantages of your supporting the uptake of ICT in your schools?

14. What do you believe are the disadvantages of your supporting the uptake of ICT in your school?

15. What kind of support does your district officer provide for the using of ICT in your schools for administrative and teaching purposes?

16. What do you believe are the opinions of your district officer towards the uptake of ICT in your schools?

17. What kind of support do you believe from your district officer would be helpful for the better use of ICT in your school?

18. Do you have a policy to introduce computers in schools, which are not using computers? If yes, please specify. If No, please specify the reasons why not.

19. Do you have any further comments?

Schedule D: District officers' interviews

1. Why did some of your schools decide to introduce ICT for administrative and teaching purposes?
2. Has your district been running projects to help teachers and pupils using computers in their teaching? If yes, please indicate the projects your district has been involved during the last 5 years and their aims.
3. Who motivated your schools to introduce ICT for administrative and teaching purposes?
4. What kind of support did you provide to your schools for the introduction of ICT for administrative and teaching purposes?
5. What kind of support did your school counsellor provide to your schools for the introduction of ICT for administrative and teaching purposes?
6. Which problems arose during the introduction of ICT for administrative and teaching purposes in your schools?
7. How is ICT used in your schools? Please give an example.
   - In which classes is ICT used?
   - How often is ICT used?
   - In which subjects is ICT used?
   - What kind of educational software is used?
8. What are the reasons that only a number of teachers use ICT in their teaching?
9. Which are the problems your schools face in using ICT for administrative and teaching purposes?
10. What kind of support do you provide teachers for using ICT in their teaching?
11. What kind of support do you provide head teachers in schools where ICT is used for administrative and teaching purposes?
12. Have you organized any training programmes and seminars about computers in education for teachers in the schools in your district? If yes, describe in brief some of these programmes and seminars and their aim.
13. What do you believe are the advantages of your supporting the uptake of ICT in your schools?
14. What do you believe are the disadvantages of your supporting the uptake of ICT in your school?
15. What kind of support does your school counsellor provide for the using of ICT in your schools for administrative and teaching purposes?
16. What do you believe are the opinions of your school counsellor towards the uptake of ICT in your schools?
17. What kind of support do you believe from your school counsellor would be helpful for the better use of ICT in your school?
18. Do you have a policy to introduce computers in schools, which are not using computers? If yes, please specify. If No, please specify the reasons why not.
19. Do you have any further comments?